Watersheds Coalition of Ventura County

Integrated Regional Water Management Plan

2006

TABLE OF CONTENTS

PAGE

Section 4.0 Plan Objectives and Priorities

Section 5.0 Water Management Strategies Used to Meet Plan Objectives

Section 6.0 Implementation Projects and Project Priorities

Section 7.0 Data Management and Analysis

Section 8.0 Coordination with Planning and State/Federal Agencies

Appendices

List of Tables, Figures and Maps

PAGE

Tables

Figures

Maps

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This IRWM Plan represents a collaborative effort involving many agencies, organizations and individuals. Participants attended many meetings and collectively spent hundreds of hours developing the information contained in this plan.

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LIST OF ACRONYMS

ACOE	U.S. Army Corps of Engineers
AF	acre feet
APPP	Agriculture Pollution Prevention Plan
ASBS	Area of Special Biological Significance
AWA	Association of Water Agencies of Ventura County
BCLA	Biological Core and Linkage Area
BLM	U.S. Department of Interior Bureau of Land Management
BMP	Best Management Practice
BNR	Biologic Nutrient Removal
BOD	Biological Oxygen Demand
Caltrans	California Department of Transportation
CARCD	California Association of Resource Conservation Districts
Casistas	Casitas Municipal Water District
CCA	Critical Coastal Area
CCC	California Coastal Commission
CCSC	Calleguas Creek Steering Committee
CDF	California Department of Forestry
CDFG	California Department of Fish and Game
CEPA	California Environmental Protection Agency
CEQA	California Environmental Quality Act
CIP	Capital Improvement Plan
Calleguas	Calleguas Municipal Water District
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plan Society
CSD	Community Services District
CSU	California State University
CTR	California Toxics Rule
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CURB	City Urban Restrictive Boundary
DWR	California Department of Water Resources
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ET	Evapotranspiration
FS	USDA Forest Service
FCGMA	Fox Canyon Groundwater Management Agency
GWTF	Groundwater Treatment Facility
HA	Hydrologic Area
HAS	Hydrologic Sub-Area
HCP	Habitat Conservation Plan
HGM	Hydro-Geomorphic Model
IRWMP	Integrated Regional Water Management Plan
JPA	Joint Powers Authority
LA	load allocation
LAFCO	Local Agency Formation Commission
LARWQCB	Los Angeles Regional Water Quality Control Board
LF	linear feet

Metropolitan	Metropolitan Water District of Southern California
MG	million gallons
MGD	million gallons per day
MMs	management measures
MMA	Marine Managed Area
MRCA	Mountains Recreation and Conservation Agency (Santa Monica Mountains)
MOU	Memorandum of Understanding
MWTP	Moorpark Wastewater Treatment Plant
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint sources (of pollution)
NRCS	Natural Resources Conservation Service (USDA)
OBGMA	Ojai Basin Groundwater Management Agency
POTW	Publicly Owned Treatment Works
RO	reverse osmosis
RWRMP	Renewable Water Resource Management Program
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SOAR	Save Our Open Space & Agricultural Resources
SSO	site specific objective
SVWQCP	Simi Valley Water Quality Control Plant
SWAMP	Surface Water Ambient Monitoring Program
SWQPA	Storm Water Quality Protection Area
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
TCWTP	Tapo Canyon Water Treatment Plant
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
UC	University of California
UCCE	University of California Cooperative Extension
USDA	U.S. Department of Agriculture
USGS	U.S. Geologic Survey
USDI	U.S. Department of the Interior
UWCD	United Water Conservation District
UWMP	Urban Water Management Plan
VCIRWMP	Ventura Countywide Integrated Regional Water Management Plan
VCRCD	Ventura County Resource Conservation District
VCWPD	Ventura County Watershed Protection District
VCWWD	Ventura County Water Works District
WDR	Waste Discharge Requirement
WLA	waste load allocation
WMI	water management initiative
WMP	watershed management plan
WQO	water quality objectives

ABOUT THIS PLAN

This Integrated Regional Water Management Plan (IRWMP) is the product of an intensive stakeholder process conducted under the direction of the Watersheds Coalition of Ventura County (WCVC). The Plan reflects the unique needs of a diverse region, Ventura County, which encompasses three major watersheds, ten cities, portions of the Los Padres National Forest, a thriving agricultural economy, and is home to more than 817,000 people.

This Plan was prepared with funds provided by local participating agencies and a Proposition 50 Planning Grant. A number of individuals have contributed to the development of the Plan (see Acknowledgements), including consultants, representatives of local agencies and County staff. Development of the Plan has been a true collaborative effort.

This IRWMP is a comprehensive plan that primarily addresses Regionwide water management and related issues. The Plan complies with the State Guidelines for an Integrated Regional Water Management Plan, and provides for an integration of project and program implementation strategies which best address the needs and objectives of the Region. The Plan supports the development and implementation of individual watershed protection plans for each of the three major watersheds in the Region, which will focus more directly on monitoring and implementing projects that are watershed-specific. Watershed-specific plans will also allow for more localized stakeholder review reflecting input that is more difficult to achieve on the larger scale of the regional IRWMP. One such plan has already been adopted: the Calleguas Creek Watershed Management Plan. Watershed management plans are also being considered for the Ventura River and Santa Clara River Watersheds.

How To Read This Document

This IRWM Plan has been formatted to address the State Guidelines for IRWM Plans and to meet local needs. Each section contains required IRWM Plan elements, work plan components from the Proposition 50, Chapter 8 IRWM Planning Grant as well as information that serve local needs for data collection and management and future planning. There are nine sections in the Plan, which include an introduction with history and a Plan overview, a Region description (the local “setting” with respect to water and watershed conditions), an overview of the stakeholder process, a section containing plan objectives and priorities, a section addressing the 20 water management strategies that form the core of the Plan, an implementation section addressing specific projects to be implemented, an overview of data and technical analysis, a discussion of coordination with local, State and Federal agencies, and a reference bibliography.

For purposes of the WCVC IRWMP, and unless otherwise indicated, when the term "Santa Clara River Watershed" is used, the term applies to the Ventura County portion of the Santa Clara River Watershed. Stakeholders in the Los Angeles County portion of the Santa Clara River Watershed, also known as the Upper Santa Clara River (USCR) Watershed, are investigating the development of an Integrated Regional Water Management Plan (IRWMP) for the USCR Watershed. Should this effort lead to the adoption of an USCR IRWMP, development of a combined IRWMP for the entire Santa Clara River Watershed is envisioned. One of the goals of the combined IRWMP is to identify additional projects to address Watershed-wide issues and identify opportunities for project integration across the Ventura County and Los Angeles County portions of the Watershed.

Unless otherwise stated, references to the Santa Clara River Watershed in the WCVC IRWMP refer to the lower watershed located in Ventura County.

The Appendices include back-up information regarding Proposition 50 (including Plan standards), memorandum of understanding and authorizing resolutions among participating agencies, water quality information and Section 303(d) Impaired Waterbodies in Ventura County, data inventory table and data table relationships, an annotated list of relevant water management reports and plans, proposed projects for future consideration and review, and a brochure describing the WCVC.

There are a variety of terms used in this IRWM Plan which may have more than one meaning when used in other reports or for other purposes. The State Guidelines for IRWMP development do not, in all cases, clearly define the terms used here; therefore, for the purposes of this IRWM Plan, the terms listed below have been interpreted as follows by the WCVC:

Goal – an overarching or general statement regarding a desired outcome
Objective – a specific desired outcome
Strategy – one of the 20 water management strategies; a means by which to effectively manage water resources in the Region
Project or Program – a specific effort to carry out an objective
Integration – a combination of parts or objects that work together well; coordination of projects or programs in the IRWM Plan which provide multiple benefits and/or meet multiple objectives

Proposition 50, Step 2 Implementation Grant Application: For additional information regarding the projects proposed and submitted by the WCVC for Round 1 funding under the Proposition 50, Step 2 Implementation Grant, refer to the application attachments found on the WCVC website at www.watershedscoalition.org.

CEQA Review: Development and implementation of the IRWM Plan will provide a positive benefit to residents, businesses, irrigators and the environment through the resulting improvement to one of the most important resources in the Region – water. The County of Ventura has determined that the WCVC IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines.:

The County of Ventura has filed a Notice of Exemption for the WCVC IRWMP. The reason for exemption (Section D of Notice of Exemption) is stated as follows: "This project consists of adoption of an Integrated Regional Water Management Plan (IRWMP) for the Region encompassing Ventura County. The IRWMP is a planning study which identifies potential projects, programs and policies for possible future actions and is therefore statutorily exempt under the provisions of CEQA under Section 15262 – Feasibility and Planning Studies. Furthermore, the IRWMP consists of basic data and information collection and includes possible actions, subject to future adoption or approval, which would protect natural resources and the environment and are therefore categorically exempt under the provisions of CEQA under Sections 15306, 15307, and 15308.

Future IRWMP Updates:

This Plan is a living document that will help guide complex future water management, land use, flood management and other water-related decisions for the region. In order to keep the Plan current, some elements will require frequent review and updating. The frequency with which the

Plan will be updated will depend on changes in local conditions, changes in State and/or Federal requirements, on-going development of watershed plans for each of the Region's major watersheds, continued public participation, and the availability of financial resources. The intent of the WCVC is to update the Plan as needed, including a planned addendum in 2007 which will include an updated list of proposed projects and further discussion about how the strategies and projects are integrated.

The following symbol - Δ - has been used in the IRWMP as an indication that additional information or revision is planned in the IRWMP update in 2007.

NOTE: When they are received, resolutions adopting this IRWM Plan will be included in the Final IRWMP in Appendix H.

SECTION 1.0 INTRODUCTION

1.1 History of Water Management in Ventura County

Agencies and organizations in Ventura County have a long history working together to address water resources issues, dating back to the early 1970s. In the past 35 years numerous water supply and conservation, water quality, wetland restoration and reclamation projects have been planned and implemented. Many individuals and agencies have worked together to assure effective management of local water resources and protection of water-dependent environmental resources and species habitats. These entities include local retail and wholesale water districts, Cities, sanitary districts, the County of Ventura, environmental and non-profit organizations, the Association of Water Agencies, State and Federal agencies and many others. Multi-jurisdictional and coordinated efforts are taking place on a watershed and/or countywide basis. These efforts are addressed in this Plan.

Background

1974 Ventura County Designated as 208 Planning Area

The Federal Water Pollution Control Act, commonly known as the Clean Water Act, was originally enacted in 1948. The Act was amended by the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) by Congress with the primary purpose of "restoring and maintaining the chemical, physical and biological integrity of the Nation's water" and "to achieve a level of water quality by July 1983, which provides for recreation in and on the water; and for the propagation of fish and wildlife." Section 208 of the amendments and the requirements of the Code of Federal Regulations (CFR's) specified general designation procedures, time constraints, grant funding criteria, and minimum plan content requirements. Ventura County was designated as a 208 Planning Area in 1974.

Funded by a Federal 208 grant (Environmental Protection Agency), Ventura County undertook a comprehensive assessment of its water quality problems between 1975 and 1978. The initial 208 Water Quality Management Plan (WQMP) was adopted in 1978 by 23 local agencies. The plan recommended short-term programs to remedy those water quality problems which required immediate attention, as well as governmental action aimed at enhancing water quality over the long term. The Ventura Regional Sanitation District was the lead agency for the initial 1975 to 1978 effort. In October of 1978, the Board of Supervisors of Ventura County was designated by the State to implement the Plan, as well as the continuing planning program.

1980 208 Plan

From 1979 to 1980, the Ventura County Water Quality Planning Program continued by identifying additional water quality issues, updating the Population/Land Use Forecasts and reevaluating the 1978 Water Quality Management Plan's Regional Goals and Policies. As a result of these efforts, the 1978 plan was updated, revised and adopted by the County Board of Supervisors as the 208 Areawide Water Quality Management Plan (1979-1980). Additional information on the contents of the 1978 and 1980 Areawide Water Quality Management Plans are provided in Volume II, the Plan's Technical Appendix.

Following review of the Areawide Water Quality Management Plan, the County Board of Supervisors adopted Resolution No. 431 establishing a countywide plan for the protection, preservation and enhancement of countywide water resources. The resolution summarized the direction given by the Board to address seawater intrusion, water conservation, two specific water reclamation projects, local State Water entitlements, creation of the Fox Canyon Groundwater Management Agency, and the Sespe Creek water rights issue.

1994 Water Management Plan Update

In 1994, the County continued the Water Quality Management Planning Program effort by updating the 1980 Areawide Water Quality Management Plan to include the developments in water management planning during the previous 14 years. This update was referred to as the Water Management Plan Update, and was overseen by a committee which included representatives of the Countywide Planning Program (CPP) and Association of Water Agencies (AWA). The Water Management Plan Update fulfills the requirements of Section 208 of the Clean Water Act. This Update: 1) provided compliance with current legislation; 2) included an update of technical data to provide an adequate information base for decision-making; 3) was a comprehensive planning document, consistent with other regional plans; and 4) was formatted to assure easy referencing and updating. The 1994 Update included details regarding the specific goals, policies and program recommendations of the Water Management Plan and summarized the implementation status of 1980 Plan recommendations (including construction of the Vern Freeman Diversion, Pumping Trough Pipeline, and creation of the Fox Canyon Groundwater Management Agency as required as a condition of funding of these two construction projects to address seawater intrusion and groundwater overdraft). The Technical Appendix addressed in more detail the legislative history of water management planning and water supply, demand management and quality issues.

Recent Local Water Management Activities

Local entities have undertaken water management efforts at both the regional (countywide) level and at the watershed level.

Calleguas Creek Watershed Management Planning Process (1996 – Present)

Agencies within the Calleguas Creek Watershed have been working together since 1996 to develop the Calleguas Creek Watershed Management Plan (WMP or Plan). This process has been a comprehensive, stakeholder driven effort to develop a resource management and protection program and strategy for the 343-square mile Calleguas Creek Watershed in southeastern Ventura County. Watershed stakeholders initiated the WMP in response to a clear need to work cooperatively and responsibly to develop a comprehensive plan which would guarantee the long-term health of natural resources in the watershed, and implementation of a coordinated water quality and land use planning strategy for the watershed as a whole. Led by a broadly representative Steering Committee (local property owners, water and wastewater agencies, environmental groups, agricultural parties, governmental entities, and other private interests), the WMP completed its first phase, the development of action recommendations and technical tools to address coordinated environmental and resource management by public agencies and private sector participants. The Phase I Report (2004) contains the recommendations and actions that were developed during Phase I. Phase II, which is currently underway, focuses on how responsible parties in the Calleguas Creek Watershed will act collectively to address significant water quality improvements and meet the mandatory standards of the Federal Clean Water Act and California Porter-Cologne Act.

In June 2005 local stakeholders, under the direction of the Steering Committee, adopted an Integrated Regional Water Management Plan for the Calleguas Creek Watershed. This plan incorporated the 2004 Phase I Report of the Calleguas Creek Watershed Management Plan (Volume I) which contains an action plan to address identified problems in the watershed as a result of more than nine years of stakeholder review and study, and an Addendum (Volume II) which addresses the elements required in the State Guidelines for integrated regional water management plans.

Ventura Countywide Integrated Regional Water Management Planning (VCIRWMP) Group (2002 – 2006)

Early in 2002, in anticipation of the approval of a statewide water bond with grant funds for integrated regional water management, a "coalition" of 27 water-related agencies in Ventura County met to identify priority projects for these grant funds, that would address key water problems facing the County (water quality, reliability, etc.), as identified during the earlier water management planning efforts. This water bond passed in the form of Proposition 50. Through this coalition, called the VCIRWMP Group, local agencies worked together, in conjunction with State and Federal regulatory agencies, to discuss water issues facing the Region and seek solutions. The primary areas of focus were the Ventura River and Santa Clara River Watersheds. As described above, the Calleguas Creek Watershed issues were being addressed through a separate management plan and stakeholder process.

In early 2004, a consensus of VCIRWMP Group members recommended that staff from the Ventura County Executive Office (CEO) and County Resource Management Agency Planning Division should coordinate the preparation of a Ventura Countywide Integrated Regional Water Management Plan (VCIRWMP) to be used as the basis to apply for grant funding and future water project funding opportunities. In the fall of 2004, the Board of Supervisors approved County collaboration with the VCIRWMP Group and a share of funding to develop the VCIRWMP and apply for Proposition 50, Chapter 8 Planning Grant and Implementation Grant funds. In May of 2005, the VCIRWMP Group adopted two resolutions formally authorizing the County Resource Management Agency Planning Division to apply for both the Planning and Implementation Grants under Proposition 50**.** In July of 2005, the Group adopted a resolution approving the Interim VCIRWM Plan and schedule for final Plan completion.

Watershed planning efforts have also been conducted within the Santa Clara River Watershed and the Ventura River Watershed. These are further described in Sections 2, 5 and 6.

Watersheds Coalition of Ventura County (WCVC) (Formed in 2006)

In April 2006 the VCIRWMP Group and the Calleguas Creek Steering Committee agreed, by resolution (***See Appendix A for a copy of the resolution)***, to form the Watersheds Coalition of Ventura County (WCVC) for purposes of consolidating integrated regional water management plans and for submittal of grant applications for the Proposition 50, Chapter 8 Implementation Grant and other applicable future funds. This consolidated IRWM Plan is the result of the collaboration of agencies through the new Watersheds Coalition of Ventura County. The WCVC meets monthly (***See Section 3 for list of stakeholders)*** to guide development of the consolidated plan and to address critical water management issues facing the Region.

Summary of Water Management Collaboration Efforts in Ventura County

Local water districts, sanitation districts, Cities, the County of Ventura, the Regional Water Quality Control Board, the Department of Water Resources, environmental and public interest groups, and many other interested local, State and Federal organizations and individuals have historically worked together and continue to pursue comprehensive water management goals in the region. From the inception of a comprehensive Water Quality Management Plan in 1975, to the 1994 Countywide Water Management Plan approved and submitted to the State Water Resources Control Board, to current efforts by the WCVC to prepare an Integrated Regional Water Management Plan and develop projects for implementation, there have been many efforts to better manage and improve the County's water resources.

Given the complexity of the issues being addressed and the diverse nature of the stakeholder groups, the planning process and implementation of recommendations will continue well into the 21st Century. The planning process has been an opportunity for local parties to take a greater role in governing local resources, balancing the needs of all stakeholders, and assuring healthy and sustainable watersheds for future generations.

1.2 Proposition 50, Chapter 8 Overview

Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, was passed by California voters in November 2002. It amended the California Water Code (CWC) to add, among other articles, § 79560 *et seq*. authorizing the Legislature to appropriate $500 million for Integrated Regional Water Management (IRWM) projects. The intent of the IRWM Grant Program is to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water. The IRWM Grant Program is administered jointly by the State Department of Water Resources (DWR) and the State Water Resources Control Board (State Water Board) and is intended to promote an integrated and regional approach to water management. The IRWM Grant Program consists of Planning and Implementation Grant funding that meets the following criteria:

Planning Grants have been, and will be, provided to eligible applicants to develop new, or to update existing, IRWM Plans or Integrated Coastal Watershed Management (ICWM) Plans that meet the requirements of the IRWM Grant Program Guidelines (Guidelines), November 2004, and the Proposal Solicitation Package (PSP). Proposals that develop, complete, or modify a component of an IRWM Plan are also eligible. Approximately $12 million was available for planning grants during the first funding cycle; $2 million of which is allocated for ICWM Plans. Each grant was limited to a maximum of $500,000. ***See Appendix B for a copy of the IRWM Plan standards***. The VCIRWMP Group was successful in obtaining a Planning Grant ($220,000) in 2006 for development of an IRWM Plan for Ventura County.

Implementation Grants are being provided to eligible applicants to implement proposals that meet the requirements of the IRWM Guidelines (Guidelines), November 2004, and the Proposal Solicitation Package (PSP). Approximately $148 million is available for implementation grants during the first funding cycle; Round One. Each grant is limited to a maximum of $25 million. Projects that are funded by Chapter 8 must be consistent with a locally adopted and State approved Integrated Regional Water Management (IRWM) Plan. The Watersheds Coalition of Ventura County has submitted a Step 2 Implementation Grant proposal for approximately $25 million for a

suite of 11 projects which address local objectives and needs and statewide priorities. ***See Section 6 for information regarding these proposed projects.***

Because of the State's continuing budget problems, funding from Proposition 50 and future water bonds are of significant importance to local and regional water agencies. Additional water-related legislation is being prepared and another water bond measure, Proposition 84, is on the November 2006 ballot in California. If this bond measure passes, Ventura and Los Angeles Counties (as part of a single hydrologic region) will have the opportunity to vie for $215 million in IRWM funding.

1.3 Purpose of the Watersheds Coalition of Ventura County, Integrated Regional Water Management Plan

As described above, the WCVC authorized the County of Ventura Resource Management Agency to prepare an integrated regional water management plan for the region encompassing Ventura County. The Plan meets the IRWM standards contained in the Proposition 50 Grant Program Guidelines ***(See Appendix B)***. The WCVC is guiding the County staff and consultants preparing this IRWM Plan to assure coordination of local water management planning efforts.

The purpose of the IRWM Plan is to integrate planning and implementation efforts and facilitate regional cooperation with the goal of improving water supply reliability, water recycling, water conservation, recreation and access, flood control, wetlands enhancement and creation, and environmental and habitat protection. Specifically, it will provide ongoing guidance and prioritization regarding implementation projects, for both Proposition 50 Implementation Grants and other funding sources.

An objective of the IRWM Plan is to build on a long-standing foundation of cooperation and existing efforts of the local entities and others such as wetlands/habitat protection groups, and ongoing watershed management committees. The objective of the IRWMP is not to duplicate existing and ongoing plans, but to better integrate these efforts and utilize the results and findings of existing plans to put forward the projects needed to address local objectives.

The IRWM Plan complies with and incorporates relevant sections of Chapter 8 of Proposition 50 and IRWMP principles and criteria for integrated water management planning as set forth in the Guidelines. In addition, development of the IRWM Plan includes the following:

1. A process for ongoing decision-making
2. Identification of multiple issues and objectives and potential solutions
3. Integration and coordination of planning with other agencies and entities
4. An inclusive and participatory public involvement process to ensure meaningful input
5. Appropriate level of scientific watershed assessment information
6. A long-term perspective
7. Phased implementation and staging of resources
8. Ongoing monitoring of project and plan implementation
9. A means for adaptive planning and management

The IRWMP provides an integration of projects that protect the natural resources of Ventura County. The Plan identifies additional projects that are critical to achieving watershed objectives.

SECTION 2.0 REGION DESCRIPTION

2.1 Region Overview

The Region included in this IRWM Plan is Ventura County (Please see Map 1). The County is a logical Region for integrated regional water management due to the history of cooperative water management in the past, the topography and geography of the Region and the similarity of water issues facing agencies in the Region. The Watersheds Coalition of Ventura County (WCVC) recognizes that watersheds are not defined by political boundaries and that future efforts to protect and manage water and watersheds in the Region must include representatives of jurisdictions outside Ventura County. Therefore, representatives of the Region are working with stakeholders and agencies in the upper reaches of the Santa Clara River Watershed, which lies in Los Angeles County, to include them in the planning process and to coordinate efforts to protect the watershed.

Ventura County has a population of over 817,000 people and is located north and west of Los Angeles County, east of Santa Barbara County and south of Kern County. The Pacific Ocean forms its southwestern boundary. Virtually the entire north half is within the Los Padres National Forest, although there are in-holdings scattered throughout the Forest area. Residential, agricultural and business uses comprise the southern portion of the Region. The County has a total area of 1,199,748 acres (1,843 square miles), of which some 550,211 acres are in the National Forest. There are 42 miles of coastline.

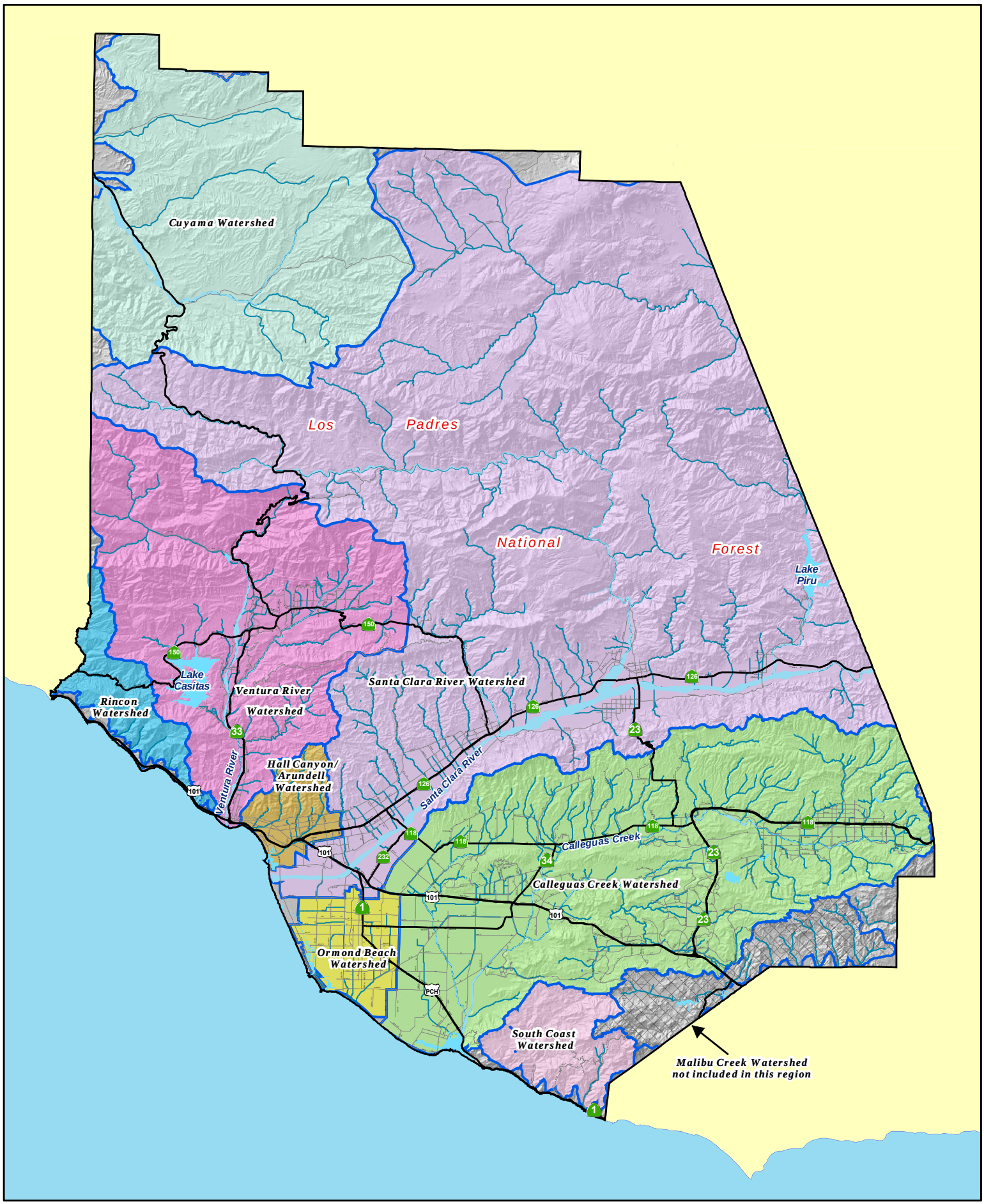
Of the estimated 330,000 acres of agricultural land in the Region, there are approximately 125,000 acres of irrigated land. The Calleguas Creek Watershed contains the highest number of irrigated acres (roughly 60,000), followed by the Santa Clara River Watershed (approximately 50,000) and Ventura River Watershed (approximately 15,000).

The Region encompasses three major Watersheds, six smaller Watersheds, and twenty-six groundwater basins. There are ten Cities, three wholesale water agencies and over 170 retail water purveyors, two groundwater management agencies, and five sanitary districts. Under these circumstances, effective regional and integrated water management planning is crucial. Please see Map #1 for an illustration of the Region with Watershed and National Forest boundaries.

Ventura County also includes two offshore islands which are part of the Channel Islands, Anacapa and San Nicolas. These islands are also Areas of Special Biological Significance. Anacapa Island is entirely within the Channel Islands National Park, and San Nicolas Island is under the jurisdiction of the U. S. Navy. For these reasons, the islands are not included within the Region for the purposes of this plan.

Since 1969, Ventura County and the ten Cities within the County have worked together in land use decision-making. The County, the ten Cities, and the Local Agency Formation Commission (LAFCO) cooperated by adopting a landmark set of policies entitled the "Guidelines For Orderly Development." These policies clarified the land use planning relationship between the County and the Cities and has resulted in confining urban development within Cities' boundaries, which are much better prepared to deliver urban services.

Additionally, the County, Cities and other agencies came together in 1974 to adopt the Regional Land Use Program. This program bound the Cities and County with such issues as population forecasting, transportation planning, spheres of influence planning, air quality planning, and water



VENTURA COUNTY
RESOURCE MANAGEMENT AGENCY
MAPPING SERVICES - GIS

WATERSHEDS COALITION OF VENTURA COUNTY MAP 1

0 5 10 Miles

N

quality planning. Many of these early planning efforts have directly resulted in continued cooperative efforts today, not the least of which is water management.

Local water agencies have maintained this tradition of cooperation, exemplified by the countywide Association of Water Agencies (AWA). The AWA includes major water districts, the Cities with water delivery responsibilities, the County, county water districts, investor-owned water utilities, mutual water companies, groundwater management agencies, a water treatment research center, and business members. It was formed in the late 1970s to provide a forum for the exchange of information on local and regional water issues; its mission statement is "to develop and encourage cooperation among entities for the development, protection, conservation and improvement of the total water resources for Ventura County." Its membership covers the range of water stakeholders in the county: agriculture, municipalities, water districts, small systems, industrial water uses, and concerned citizens.

The Region demonstrated its ability to cooperate on water issues through the 1980 ***208 Water Quality Management Plan***, a Federally mandated EPA Section 208 requirement, and the subsequent update, the ***Ventura County Water Management Plan***, prepared in November 1994. These comprehensive documents were the result of a coordinated effort between the County and most of the water management stakeholders in the Region including citizen and environmental groups, water districts and State and Federal agencies. These plans covered nearly all water management issues, except for flood control. The current process has added flood control and other important components to the integrated water management effort such as habitat protection and wetlands enhancement.

The Watersheds Coalition of Ventura County (WCVC) has made significant progress in identifying watershed-wide objectives, determining appropriate implementation projects and programs to meet those objectives, and working together on the Integrated Regional Water Management Plan. As an additional benefit, the WCVC functions as a forum where stakeholders come together to resolve conflicts and work on common issues. Prior to the formation of the WCVC, several other groups (the Ventura Countywide Integrated Regional Water Management Planning Group and the Calleguas Creek Steering Committee) have focused on these issues as well (see Section 1).

Watersheds in Ventura County – Brief Overview

There are three major Watersheds in the Region. Please see Map 1 for an illustration of Ventura County's Watersheds. The upper reaches of the Santa Clara River, which lie in Los Angeles County, and the areas within the Los Padres National Forest, are anticipated to be incorporated into future planning efforts, in cooperation with Los Angeles County and the U.S. Forest Service.

The Cuyama Watershed, located within the Los Padres National Forest and which extends westerly into Santa Barbara County, has not been included in this Plan.. The South Coast and Malibu Creek Watersheds are largely public open space and are being addressed by a group in the North Santa Monica Bay.

Ventura County has nine watersheds. Four are large and regionally significant: Ventura River, Santa Clara River, Calleguas Creek and Ormond Beach/Mugu Lagoon Wetlands. Five are smaller and have received far less attention within the County: Rincon, Cuyama, Hall Canyon/Arundell, South Coast Ventura coastal streams, and Malibu Creek streams, though the Rincon and Hall/Arundell watersheds are generally, and for the purposes of this Plan, grouped together with the

Ventura River Watershed. Calleguas Creek and the Ventura River Estuary have watershed management plans in place.

The **Calleguas Creek** Watershed is approximately 343 square miles and lies in the most heavily populated area of eastern Ventura County. The Creek has relatively small natural flows, augmented by the treated effluent from several wastewater treatment plants and urban runoff from the areas tributary to the Creek. The communities in the Watershed are served largely with imported water from the State Water Project, delivered by the Calleguas Municipal Water District. The Calleguas Creek has received the greatest amount of sustained attention and is among the most studied water bodies in the Region. Planning efforts commenced in 1996. They were driven by water quality concerns but attempted to address watershed issues in a more comprehensive way, especially flood management and habitat restoration. A number of entities have been working together to create an action plan for improvements to the Calleguas Creek Watershed. These entities are listed in Section 3.

The **Santa Clara River** Watershed is the largest, approximately 1634 square miles, natural river remaining in the Southern California. Areas located in the National Forest portion of the Watershed are home to California condors and other rare species. The River travels through two counties - Los Angeles and Ventura – and efforts are underway between the two Counties to work collaboratively to address issues of mutual concern and benefit, such as water quality improvement. Recent concerns have been raised regarding the impact of large-scale housing developments proposed in the upper Watershed within Los Angeles County. In the mid 1990s a 26-member stakeholder group was established in Los Angeles County and Ventura County to develop the Santa Clara River Enhancement and Management Plan (SCREMP) which includes reach-by-reach and river-wide recommendations. The SCREMP was finalized in June 2005. In September 2004, the U. S. Army Corps of Engineers, the Ventura County Watershed Protection District, and Los Angeles County Department of Public Works signed an agreement to begin a feasibility study on the Santa Clara River. The Nature Conservancy and the Coastal Conservancy have acquired river parkway lands on the lower reaches of the River.

The **Ventura River** Watershed located in the western portion of Ventura County encompasses 228 square miles. Its three principal tributaries are San Antonio Creek from the east, Coyote Creek from the west, and Matilija Creek from the north. Some key issues in the Watershed have included periodic flooding (most recently in 2005), removal of the Matilija Dam, construction of the Robles Fish Passage Facility and the Robles Canal, removal of invasive plants (arundo), steelhead recovery, recreation enhancement, sediment flows (to improve beach nourishment) and other habitat restoration issues. The Matilija Dam Ecosystem Restoration Study, undertaken by the Ventura County Watershed Protection District and the United States Army Corps of Engineers, was completed in September 2004. This study focused on identification of: ecosystem restoration for terrestrial and aquatic habitat to benefit native fish and wildlife (including the Federally listed endangered southern California steelhead trout) to the Ventura River and Matilija Creek in the vicinity of Matilija Dam; and improvements to the natural hydrologic and sediment transport regime to support Ventura River's coastal beach sand replenishment. Enhancement of recreational use along the Ventura River and Matilija Creek compatible with the ecosystem restoration was also considered.

The **Rincon Creek**, near its terminus at the Pacific Ocean, represents the dividing line between Ventura County and Santa Barbara County. The Rincon Point residential community, which consists of 72 existing homes, has utilized on-site septic systems to manage wastewater since the homes were first developed. Over the past decade, septic tank effluent has been implicated in

several studies as contributing to impairment of surface waters in Rincon Creek and the nearshore ocean environment.
Surfzone monitoring on the Ventura County side of Rincon Creek has resulted in repeated beach closures and postings. There is extensive water quality monitoring data that points toward significant sources of bacterial contamination the Rincon Creek watershed north of US 101.

As mentioned previously, the Hall/Arundell Watersheds are generally, and for the purposes of this Plan, grouped together with the Ventura River Watershed.

The **Ormond Beach/Mugu Lagoon** area is among the most significant coastal wetlands complexes in the Region. Mugu Lagoon sits on Naval Base Ventura County; protection has focused largely on endangered species issues. The Coastal Conservancy is working on a wetlands restoration project at Ormond Beach, which is further described in Section 5.2.

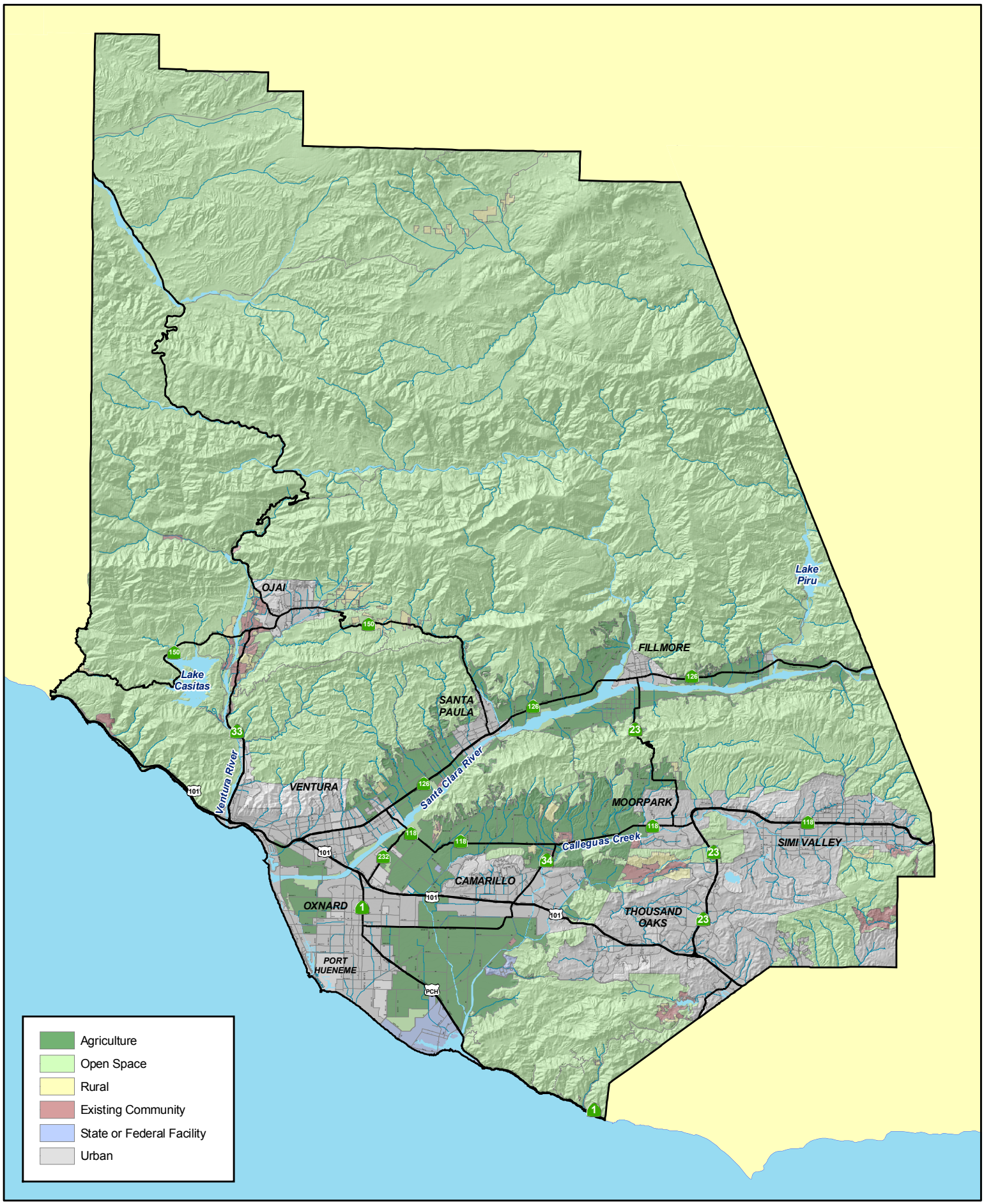
2.1.1 Major Land Use Categories

As noted in the Region Description, the County and the ten Cities have worked together to confine urban development within City boundaries and preserve the unincorporated area for agriculture and open space. Map #2 illustrates the major categories of land use as designated in local general plans.

Agricultural: The "Agricultural" designation is applied to irrigated lands which are suitable for the cultivation of crops and the raising of livestock. Because of the inherent importance of agriculture as a land use in and of itself, agriculture is not subsumed under the "Open Space" land use designation but has been assigned a separate land use designation.

Open Space: The Open Space designation encompasses land as defined under Section 65560 of the State Government Code as any parcel or area of land or water which is essentially unimproved and devoted to an open space use as defined in this section, and which is designated on a local, regional or State open space plan as any of the following:

- Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.
- Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, agricultural lands not designated agricultural; areas required for recharge of groundwater basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.
- Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open-space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.
- Open space for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, floodplains, watersheds, areas presenting high



VENTURA COUNTY
RESOURCE MANAGEMENT AGENCY
MAPPING SERVICES - GIS

WATERSHEDS COALITION OF VENTURA COUNTY LAND USE DIVISIONS MAP 2

0 5 10 Miles

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- fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.

For local planning purposes, and in support of the Guidelines For Orderly Development, Ventura County's General Plan also uses "Open space" for the following purposes:

- Open space to promote the formation and continuation of cohesive communities by defining the boundaries and by helping to prevent urban sprawl.
- Open space to promote efficient municipal services and facilities by confining urban development to defined development areas.

Rural: The "Rural" designation identifies areas suitable for low-density and low-intensity land uses such as residential estates of two acres or greater parcel size and other rural uses which are maintained in conjunction with agricultural and horticultural uses or in conjunction with the keeping of farm animals for recreational purposes.

The "Rural" designation also identifies institutional uses such as boarding and non-boarding elementary and secondary schools. Additionally, the designation is utilized for recreational uses such as retreats, camps, recreational vehicle parks and campgrounds. The designation of areas for "Rural" land uses is intended to accommodate the need for low density rural residential development, which, in conjunction with the higher density development of the Urban designated land uses, will provide a full range of residential environments.

The areas considered for inclusion in the "Rural" designation are existing clusters of rural development and areas deemed appropriate for future rural residential development. This category is mainly applicable in the unincorporated County

Existing Community: The Existing Community designation identifies existing urban residential, commercial or industrial enclaves located outside Urban designated areas. An Existing Community may include uses, densities, building intensities, and zoning designations which are normally limited to Urban designated areas but do not qualify as urban centers. This designation has been established to recognize existing land uses in unincorporated areas which have been developed with urban building intensities and urban land uses; to contain these enclaves within specific areas so as to prevent further expansion; and to limit the building intensity and land use to previously established levels. This category is mainly applicable in the unincorporated County.

State or Federal Facility: The "State or Federal Facility" land use designation recognizes Federal or State facilities, excluding forest and park lands, over which the County or Cities have no or limited land use authority. Areas so designated include lands under Federal or State ownership on which governmental facilities are located. Major examples of these facilities are Naval Base Ventura County and the California State University at Channel Islands. This category is mainly applicable in the unincorporated County.

Urban: The "Urban" land use designation is utilized to depict existing and planned urban centers which include commercial and industrial uses as well as residential uses where the building intensity is greater than one principal dwelling unit per two acres.

This designation has been applied to all incorporated lands within a City's Sphere of Influence as established by the Local Agency Formation Commission (LAFCO), and unincorporated urban centers within their own Areas of Interest which may be candidates for future incorporation.

- An *Unincorporated Urban Center* is an existing or planned community which is located in an Area of Interest where no City exists. The unincorporated urban center represents the focal center for community and planning activities within the Area of Interest. For example, the Community of Piru represents the focal center in the Piru Area of Interest.
- An *Area of Interest* is a major geographic area reflective of community and planning identity. Within each Area of Interest there should be no more than one City or Unincorporated Urban Center, but there will not necessarily be a City or Unincorporated Urban Center in each Area of Interest.
- A *Sphere of Influence* is an area determined by LAFCO to represent the "probable" ultimate boundary of a City.

2.1.2 Land Use Policies

Please see Map #3 for City boundaries, population and acreages. There are ten incorporated Cities within the County; Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Simi Valley, Thousand Oaks, and Ventura (officially known as San Buenaventura). The ten Cities and the County, which together control land use across the south half of the County, are united by a common land use ethic: that urban development should occur within the boundaries of the incorporated Cities, while land outside City boundaries should be reserved for agriculture, open space, and very low intensity rural uses. The north half of the County is primarily under the jurisdiction of the U.S. Forest Service.

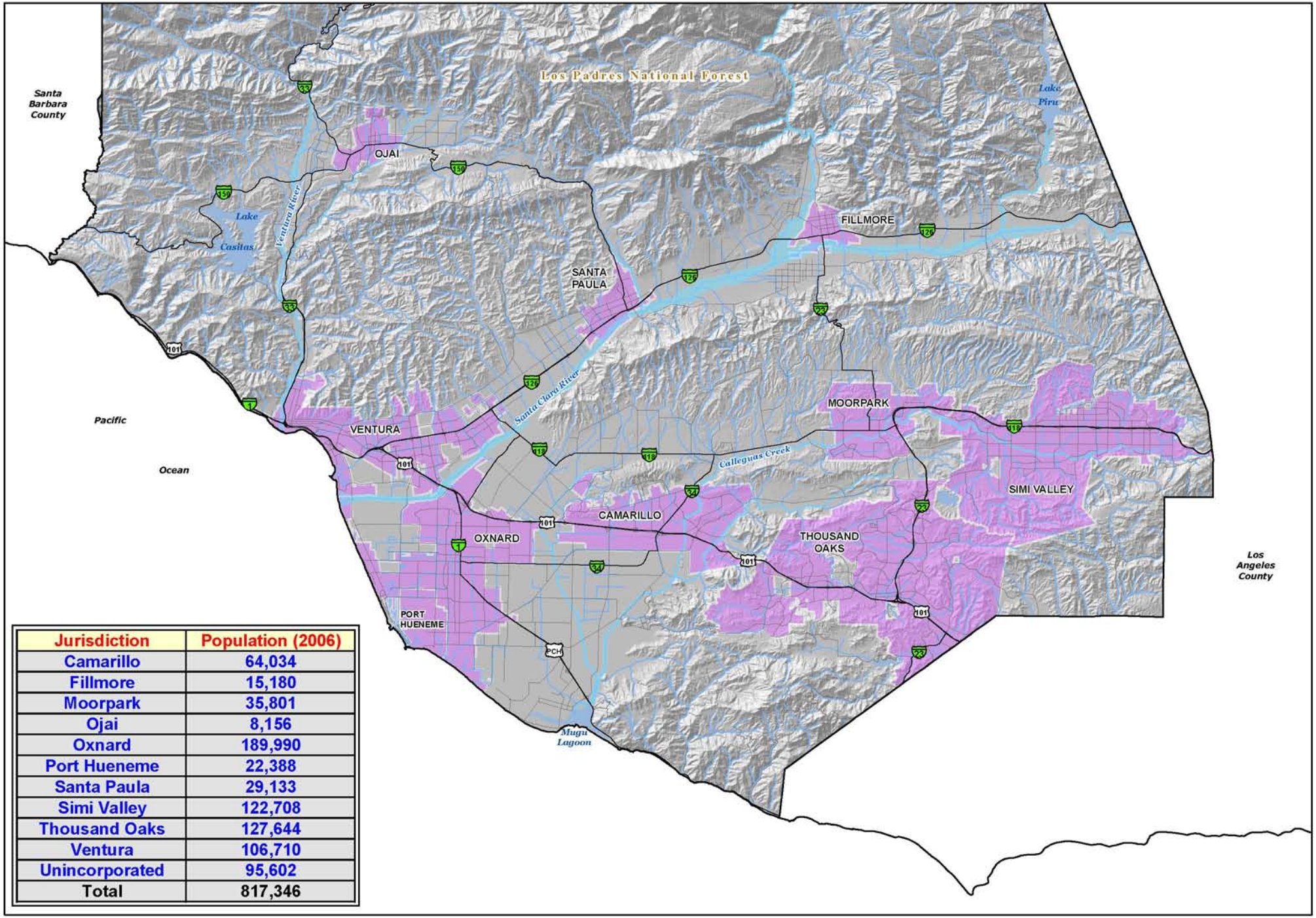
This ethic was first set forth in the Guidelines for Orderly Development, adopted in 1969 and subsequently implemented and reinforced through the adoption of seven greenbelts and ten Save Our Open Space and Agricultural Resources (SOAR) and City Urban Restriction Boundary (CURB) measures. These regulations have created a development pattern, unique in Southern California, wherein urban development is largely confined to the ten Cities, which are separated by greenbelts of agriculture and open space. Within the confines of these agreements and restrictions, each City and the County determine their own land uses through the traditionally required general plan and zoning and development ordinances.

This land use model creates unique patterns and issues of water demand, water infrastructure, ecosystem/habitat management, and virtually all other aspects of water management.

Contained within the individual General Plans of the County and Cities are policies or programs which govern the decision-making of that entity as to how they review and condition individual development projects and formulate their own future improvements.

Typically such policies and programs are grouped together into topical areas, such as “Air Quality” and “Transportation.” The same is true for “Water Supply” and “Water Quality” and other water-issue areas. Different jurisdictions have differing levels of detail on such topical areas, and complete unity has not, nor will it likely be achieved.

One of the results of this Plan will be an inventory of water-related policies and programs that will be created in order to assist each jurisdiction in their thinking relative to what additional water management efforts they may wish to undertake. Such an inventory will be collected, discussed, and redistributed to the jurisdictions through the City/County Planning Association, a committee of the Planning Directors of the County and the ten Cities that meet regularly. It is expected that by



Jurisdiction	Population (2006)
Camarillo	64,034
Fillmore	15,180
Moorpark	35,801
Ojai	8,156
Oxnard	189,990
Port Hueneme	22,388
Santa Paula	29,133
Simi Valley	122,708
Thousand Oaks	127,644
Ventura	106,710
Unincorporated	95,602
Total	817,346

VENTURA COUNTY
RESOURCE MANAGEMENT AGENCY
GIS DEVELOPMENT & MAPPING SERVICES

WATERSHEDS COALITION OF VENTURA COUNTY
INTERNAL BOUNDARIES - CITIES
MAP 3

0 20,000 40,000 Feet

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Disclaimer: this map was created by the Ventura County Resource Management Agency, Mapping Services - GIS, which is designed and operated solely for the convenience of the County and related public agencies. The County does not warrant the accuracy of this map and no decision involving a risk of economic loss or physical injury should be made in reliance therein

heightening the awareness of those directly responsible for the jurisdictions' General Plans, that additional and more effective policies and programs will be introduced into their decision-making/review processes.

For example, the County, in its General Plan and development review process, has a number of adopted programs, policies and procedures which affect water management (many of the Cities have similar topical areas in their General Plans, albeit formatted differently).

- The General Plan, under the major heading of "Resources" contains specific policies governing water supply, water conservation, water quality and biological resources (wetlands).
- The General Plan, under the major heading of "Hazards" contains specific policies governing flood control, dam inundation, and hazardous materials and waste (including wastewater).
- The General Plan, under the major heading of "Public Facilities and Resources" contains specific policies governing water supply facilities, waste treatment and disposal (including wastewater) and flood control and drainage facilities.
- The County's Initial Study Assessment Guidelines contain environmental review procedures for assessing individual projects concerning groundwater quantity, groundwater quality, surface water quantity, surface water quality, biology (including wetlands), water supply quality and quantity and waste treatment and disposal (including individual sewage disposal systems and sewage treatment).
- The County has an adopted Water Management Plan (1994) which the County General Plan requires individual projects to be consistent with.

This review process by the County is fairly complete, but it is recognized that additional strategies may be available to further efficient water management. This is true for the Cities, as well. The opportunities to be discussed at the meetings of the City/County Planning Association will help the jurisdictions working together to better manage water resources.

In addition to the authority vested in public land use planning agencies, water purveying agencies also adopt policies and programs which can influence land use. Under State law (SB 221), land use planning agencies must consult with local water agencies to determine if adequate supplies of water are available to serve proposed land developments. Additionally, water agencies must coordinate with land use planning agencies in the development of their urban water management plans which include projections of future water demand and water supply availability during normal and dry periods. Water agencies and land use planning agencies within California are partners in assuring adequate management and planning for water supplies to meet the needs of growing communities.

2.1.3 Ecological Processes and Environmental Resources

The natural ecosystem, with the many species of plants and animals, is an important resource of Ventura County. All the natural resources (land, water, air, and biology) are part of the ecosystem. Disruption of one part may affect the others. Effects are intimately intertwined and the significance of those effects is difficult to determine without consideration of the whole system. All native species and ecosystems are of aesthetic, ecological, educational, historic, recreational and scientific value to the people of Ventura County. Natural ecosystems which are conserved are productive, and many of these products are utilized by the human population. Of major concern in Ventura County are water production and watershed protection. Hunting, fishing, and many forms of outdoor recreation are water dependent. It is important to recognize that wildlife are publicly owned and are not held by owners of private land where wildlife are present. The habitat including the vegetation is, however, generally under the control of the individual land owners and the supervision of County and other governmental agencies. It is the protection of this habitat which is most critical to maintenance of a healthy ecosystem and protection of fish and wildlife species, especially those which are *rare, threatened or endangered.*

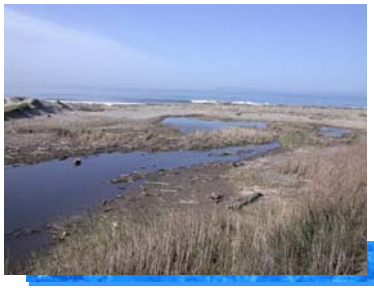
Various species of fish, wildlife and plants in Ventura County have become extinct while other species have been depleted in numbers and have experienced a loss of habitat and disruption of the ecosystem of which they are a part. This habitat destruction occurs most often as a result of human activity, such as 1) urban growth, 2) exploitation of natural resources, and 3) the introduction of non-native species to an environment.

Endangered, Threatened, or Rare Species

Ventura County is host to over 100 special status species. These are species of plants and animals that are designated endangered, threatened or rare by the California Fish and Game Commission or the Department of the Interior and Department of Commerce; additionally, there are many species whose survival and reproduction in the wild are in immediate jeopardy and are considered to be sensitive to further intrusion upon their habitat. Species that are not listed under the Federal Endangered Species Act or the California Endangered Species Act, but which nonetheless are declining at a rate that could result in a designation of endangered, threatened, or rare, are classified as species of *special concern*.

Wetland Habitat

Wetland habitats are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water. Wetlands may also include open water habitats like lakeshores. Many of Ventura's special status species are dependent upon wetland habitats for their survival. Wetlands include, but are not limited to, marshes, bogs, sloughs, vernal pools, wet meadows, river and stream overflows, mudflats, ponds, springs, and seeps. Wetlands and riparian areas support high species diversity and abundance and are consequently the most valuable wildlife habitats.



Coastal Habitat

Environmentally sensitive coastal habitats in Ventura County's Coastal Zone include coastal waters, intertidal areas, estuaries, lakes,

wetlands, and sand dunes which support plant or animal life. There are approximately 42 miles of coastline in Ventura County, much of which is within the County's jurisdiction. Along the coast, intertidal and subtidal diversity creates feeding habitat for a variety of water birds and the sandy beaches serve as resting habitats for shorebirds. Additionally, subtidal rock outcrops provide anchorage for kelp, which in turn provides habitat for a multitude of organisms. Approximately 80 acres of coastal dune habitat is located in unincorporated Ventura County.. Coastal wetlands foster a variety of habitats for unique flora and fauna in the Region.

Migration Corridors for Fish and Wildlife

Migration corridors connect two large habitat areas and allow freedom of movement for animals. In addition, they often provide the only available habitat for species that occupy the corridor area. Biologists have identified areas that experience recurrent aquatic, riparian, or terrestrial species movement that are crucial to these species as migration corridors or habitat linkages. These migration corridors encourage preservation of plant and animal populations by allowing greater access to food and a larger gene pool. Barriers in Ventura County include large developed areas, barren lands, and roadways.

Ventura County hosts a wide diversity of wildlife including mammals, birds, amphibians, reptiles, fish and invertebrates. Some of these species migrate along ridgelines in the mountainous terrain where there are fewer interfaces with urban uses. Other species migrate along the arroyos, rivers and other riparian and wetland corridors, where urban development is nearer, and the potential for adverse impacts much greater when these natural habitats are encroached upon.

Several hundred sensitive species of vertebrates occupy the varied habitats and topography of the Los Padres National Forest. The Los Padres National Forest is occupied by a wide range of species that are deemed sensitive by the U.S. Forest Service. These species are identified on the U.S. Forest Service's *List of Threatened, Endangered, and Sensitive Species of Los Padres National Forest*, dated January 2004.

Locally Important Species and Communities

The diverse topography and climate of Ventura County provide an environment where a number of plant and animal communities exist. Locally important communities include types of coastal sage scrub, sub-alpine forest, riparian woodland, and desert chaparral, among others.

Unique species range from mammals and invertebrates to various species of birds, fish, and reptiles. Some of these are locally important species or communities that have been identified by local biologists to be characteristic of or unique to the Region. Others are considered candidates for a designation of endangered, threatened, or rare by the California Fish and Game Commission or the U.S. Secretary of Commerce.

Ecological processes in the Region which are impacted by water management measures are numerous and listed here in a very general way. The County's rivers are prone to flooding, and in fact flooding along the Santa Clara River during the 2004-05 rainy season damaged many agricultural and urban properties, including the Santa Paula Airport. Flooding along the Ventura River during that same year, caused serious damage to infrastructure facilities, roadways, homes and properties located in the floodplain. Flood control and prevention measures frequently have negative impacts on natural habitat, particularly riparian habitat.

Urban and agricultural land uses create pollutants which impact water quality. Most of the Impaired Waterbodies listed in Section 2.1.6 and in Appendix C resulted from such runoff.

Implementation of programs such as the National Pollutant Discharge Elimination System (NPDES) and the Nonpoint Source Pollution Control Program are key to integrated water management.

Development of water supply for human use has traditionally been done without due regard for habitat preservation/restoration, but increasing priority is being given to changing the process of water resource development and human use to conduct these activities in ways which will not damage our natural resources and to restoring damaged natural habitats so that they not only survive but thrive. Ventura County has a large and growing wetlands preservation and restoration movement, which advocates for habitat preservation.

2.1.4 Areas of Special Biological Significance

Areas of Special Biological Significance (ASBS) are designated by the State of California, under the Public Resources Code 36700 (f). Ventura County has two Areas of Special Biological Significance; ASBS 22 and ASBS 24.

ASBS 22. This includes two Channel Islands, Anacapa and Santa Barbara Islands. Both are entirely within Channel Islands National Park, along with San Miguel, Santa Cruz, and Santa Rosa Islands. While the County works with the National Park Service on issues of mutual concern, it is unlikely that the County's water management programs and projects would significantly impact the Areas of Special Biological Significance around these islands.

ASBS 24. This area runs along Ventura County's southern coastline, from south of Mugu Lagoon past the border between Ventura and Los Angeles Counties. It extends from the beach into the Pacific Ocean for varying distances along the coast. At its northern tip, this ASBS would be affected by runoff from the Calleguas Creek Watershed. Because there are substantial urban areas and agricultural operations within this Watershed, urban pollution sources and agricultural runoff are issues that will require consideration and have been addressed in the IRWMP. Farther south, the South Coast Watershed (the Santa Monica Mountains portion within Ventura County) drains into ASBS 24. Much of this Watershed is public open space, including Point Mugu State Park and parts of the Santa Monica Mountains National Recreation Area (SMMNRA). Scattered among the SMMNRA holdings are a substantial number of privately owned properties. These properties are developed at very low intensity, with scattered houses, some livestock, and very little agriculture; however they are all on private wells, and all use individual septic system sewage disposal. Water management in this Watershed must take into consideration the impacts on ASBS 24.

2.1.5 Marine Protected Areas

The areas around the five island Channel Islands National Park (some 12 to 15 miles offshore) are a National Marine Sanctuary. In addition, there is a strip of the Pacific Ocean, at least three miles wide, extending along the County's entire coastline, which is a Marine Protected Area. The Ventura River, Santa Clara River, and Calleguas Creek Watersheds all drain into these areas, with resulting impacts on the water. These are among the issues that must be addressed by Watershed Management Plans in the County.

2.1.6 Impaired Water Bodies

SECTION 303(D) LIST OF WATER QUALITY LIMITED SEGMENTS

Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop a list of water quality limited segments. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called as Total Maximum Daily Loads (TMDL), to improve water quality.

The Section 303(d) Impaired Waterbodies in Ventura County (adopted in 2003) are listed, by watershed, in ***Appendix C.*** There is a proposed updated 303(d) list being considered by the State Water Resources Control Board. *Δ The next update to this IRWMP will include the new adopted 303(d) list.*

A summary of the key issues follows:

1. The Calleguas Creek Watershed (CCW) has perhaps the most serious impairment problems; it has 14 impaired bodies with a wide variety of chemical pollutants from agricultural and urban uses.

Four TMDLs have been approved in the CCW by EPA to meet Consent Decree requirements. The Chloride TMDL was approved by EPA in 2002. However, the Chloride TMDL was not adopted by the State; as such no implementation plan has been developed. The Nutrients TMDL was adopted by the State and approved by EPA in 2003. The Toxicity TMDL and the Organochlorine Pesticides and PCBs TMDL were adopted by the State and approved by EPA in 2006.

The Metals TMDL was adopted by the State on October 25, 2006 and will undergo State Office of Administrative Law (OAL) review and then must be approved by the EPA. Approval of the Metals TMDL by EPA is expected in March 2007 to meet Consent Decree requirements. A TDS, Sulfate, and
Boron TMDL, which will include an implementation plan for Chloride, is currently under development and is expected to be completed by Stakeholders in 2007. A Bacteria TMDL is currently under development and is expected to be completed by Stakeholders in 2008.

2. The Santa Clara River Watershed is also experiencing significant chloride levels, from agricultural uses and wastewater effluent discharges into the River. TMDLs are completed for chlorides and nutrients.
3. The Ventura River Watershed's impairments are partly mechanical, such as fish barriers and pumping/water diversions, partly biological such as from coliform, and partly chemical. There are ten listed impaired waterbodies, but no TMDLs have been completed yet.
4. There are also impaired waterbodies within the small coastal Watersheds. Many of the local beach areas are impaired due to coliform bacteria levels, while McGrath Lake and Port Hueneme Harbor have chemical pollutant concerns. TMDLs are complete for McGrath Beach coliform. TMDLs are scheduled for pesticides and coliform for the Ventura Marina in FY 08/09.
5. The Santa Monica Bay Watershed Management Area includes four impaired waterbodies within Ventura County, largely related to intense urban uses. No TMDLs have been completed for these four impaired waterbodies in Ventura County.

2.1.7 Social and Cultural Make-Up of Regional Community

Demographics and Population

Ventura County is a diverse and thriving region. Based on 2004 State Department of Finance information, the County had a total population of approximately 817,000 people, of whom 660,070 or 88 percent live within the incorporated Cities. Some 57 percent are non-Hispanic white, while Hispanics represents the largest minority community with 33 percent of the total. Asians represent the second largest minority community with 5 percent of the population. According to the 2000 census, median household income was $59,666 Countywide, and ranges from a low of $41,651 in Santa Paula to $76,815 in Thousand Oaks.

As described in the SCAG (Southern California Association of Governments) 2004 report, Ventura County is projected to have 990,000 people by 2030, which is an increase of 230,000 people during the forecast period. The annual population growth rate is about 1 percent. Following the Southern California trend, Ventura County is projected to be more racially and ethnically diverse by 2030 than it is today. The Hispanic population is projected to increase dramatically, and the share of the Caucasian population is expected to decrease. The Hispanic population is projected to be 421,000, which is a 66 percent increase from the 2000 census and an annual growth rate is about 2.2 percent. African Americans are projected to have a very small increase, adding only 5,000 people over the forecast period. The Asian population is projected to add 38,000 to Ventura County, which is about a 63 percent increase from the 2000 census.

SCAG projections indicate that a total of 128,000 jobs will be added to Ventura County by 2030. Jobs in service and retail sectors will grow rapidly within Ventura County during the 2000-2030 period. It is projected that those two sectors will contribute 95,000 jobs or about 75 percent of the total job growth in the County. Ventura County has the highest number of agriculture jobs in Southern California. In the year 2000, the County had 30,000 agriculture jobs, twice the agriculture jobs in Imperial County. The major change that will occur in the Ventura County economy over the forecast period is urbanization, which will result in a continuing decline in agricultural employment. SCAG is also projecting that Ventura County will lose 8,500 jobs, or decrease 29 percent in agricultural jobs, over the forecast period.

Economic Factors

Ventura County's economic base is as diverse as its population. Ventura County's mild Mediterranean climate combined with the prime agricultural soil of its river valleys, create optimum farming conditions, and the agricultural sector forms a key part of the County's economy. Agricultural production generated $1.4 billion in gross sales in 2004, placing the county 9th in a statewide ranking of California's 58 counties and 10th in a nationwide ranking of all U.S. counties. Ventura County was ranked as one of the top 5 counties in California for 13 agricultural commodities in 2004.

Table 2-1. Ventura County's Leading Agricultural Commodities – 2004

Commodity	Gross Value ($)
1. Strawberries	363,646,000
2. Nursery Stock	221,999,000
3. Lemons	176,361,000
4. Avocados	124,661,000
5. Celery	122,832,000
6. Tomatoes	71,735,000
7. Flowers, Cut	65,663,000
8. Raspberries	48,586,000
9. Peppers	34,628,000
10. Oranges, Valencia	20,525,000

Source: USDA, National Agricultural Statistics Service, California Field Office.
Summary of County Agricultural Commissioners' Reports, Gross Values by Commodity Groups – California 2003-2004. October 2005.

In addition to generating significant economic benefits, agricultural lands in Ventura County also provide habitat for various species, provide buffers between urban areas and natural habitats, and are part of the cultural landscape. Preservation of agricultural land uses in the County is therefore recognized as an important tool to contribute to water quality management and open space protection.

Military bases contribute significantly, through Naval Base Ventura County and the California Air National Guard Base. The civilian portion of Port Hueneme Harbor, an excellent deep-water facility, accommodates a growing volume of sea traffic and commercial commodities. Technology companies such as Thousand Oaks' Amgen and Camarillo's Vitesse provide a highly educated workforce with well-paying jobs. The mild climate, proximity to Los Angeles, and spectacular natural resources, such as the Channel Islands National Park and Los Padres National Forest, attract significant numbers of tourists. A key economic issue for County residents, as elsewhere in Southern California, is the high price of housing, with a median home price of over $600,000 in 2006.

The U.S. Department of Housing and Urban Development (HUD) reported that the 1998 median household (four persons) income for the County of Ventura was $65,300. In comparison, HUD estimated that the overall County median income in 1979 was $21,243 and in 1987 was $36,700. According to the 2000 Census, the median income level in the County, was $59,666 per year.

HUD defines the categories of income as follows:
• Very low-income – 50 percent or less of County median household income.
• Low-income – 80 percent or less, but greater than 50 percent, of County median household income.
• Moderate-income – 120 percent or less, but greater than 80 percent, of County median household income.
• Upper-income - greater than 120 percent of County median household income.

The term "lower-income" includes both "low-income" and "very low-income" categories.

The 1998 - 2005 Regional Housing Needs Assessment (RHNA) indicated that in the unincorporated County in 1998 there were approximately 6,275 very low-income households, 3,136 low-income households, 2,481 moderate-income households, and 17,612 upper-income households.

There are several "disadvantaged" communities within the County. As defined by Proposition 50 Grant Guidelines, a disadvantaged community is one with an annual median household income that is less than 80 percent of the statewide annual median household income.

Social and Cultural Values

The County's social and cultural values are as varied as its population and economy. However, as noted above, the County's residents are united in their determination to minimize the pace of urban growth and to preserve the County's agricultural and open space resources. Of the County's ten Cities, eight (Camarillo, Fillmore, Moorpark, Oxnard, Santa Paula, Simi Valley, Thousand Oaks, and Ventura) have approved Save Our Open Space and Agricultural Resources (SOAR) measures which define and limit where growth can occur and require voter approval of any development outside those areas. There are two Cities which do not have these measures. Port Hueneme is completely surrounded by the City of Oxnard and the Pacific Ocean, and therefore cannot expand. The City of Ojai is known for its determined no-growth sentiment and limits growth through its General Plan and zoning approval process. Finally, County residents adopted a Countywide SOAR measure which effectively limits urban development on Open Space and Agricultural areas.

2.1.8 Water Supply

Overview of Supplies

Ventura County has a diverse variety of water supply sources although the mix of supplies vary greatly by Watershed. The County's water supplies are primarily obtained from three major sources: groundwater (65 percent), surface water (8.5 percent), and imported State Water (25 percent). A small amount of recycled water (approximately 1.5 percent) is also used when and where it is available. Currently there are no desalination projects in place.

Major Water Issues and Problems

The following list of issues and problems was recently developed by the WCVC and acknowledges the challenges that have been recognized by local water agencies and others since the early 1970s.

- Quantity of water available locally not adequate to meet local water needs.
- Agricultural and urban runoff (point and nonpoint sources) have degraded some local water bodies and groundwater basins thereby reducing the potential uses of these water sources – including septic tank leaching, runoff from agricultural areas, stormwater runoff. These problems are most pronounced on the Oxnard Plain, but are also present in the Ojai Valley area of the Ventura River Watershed.
- Localized problems with high TDS, chlorides and TMDLs.
- Seawater has intruded into a critical aquifer on the Oxnard Plain.

- Periodic flooding events threaten or destroy property and habitats.
- Wetlands and habitats (including fisheries) have been lost or degraded due to reduced flows/pollution.
- Lack of comprehensive studies in some watershed areas – supply, demand, flows.
- Untapped opportunities to maximize use of treated effluent from local wastewater treatment plants (some of which runs into the ocean and is not captured for beneficial use) and increased water use efficiency through implementation of statewide standardized best management practices.

Groundwater

Groundwater is the largest single source of water and is pumped extensively by individual well owners and by a majority of the 166 public water purveyors within the County. Purveyors either wholesale water to other purveyors or make deliveries directly to individual users. Since more groundwater is used than is replaced, overall, the County's groundwater reserves are slowly decreasing. Groundwater provides about 65 percent of the water utilized in the County. Agricultural demand accounts for 80 percent of the total demand for groundwater in the County. See Figure 2-1 for boundaries of each groundwater basin in the County.

There are 32 separate groundwater areas or recognized groundwater basins in Ventura County.

Figure 2-1

Source: Ventura County Watershed Protection District. The map also includes Zones 1-4, which are designated by the Watershed Protection District for their planning purposes.

Of the total County water demand, [approximately 430,500 acre feet (AF)], about 279,800 AF came from local groundwater sources. Because it is estimated that the local groundwater basins can safely supply only about 275,000 AF Countywide, water users extracted nearly 4,800 AFY (acre feet per year) more than was naturally and artificially replenished. However, overdraft was not evenly distributed. While some basins experienced more replenishment than extraction, overdraft of between 30,000 to 35,000 AFY persists for the Oxnard Plain and Pleasant Valley. This compares with at least 31,000 AFY of overdraft estimated in 1988.

Most (50-60 percent) of the groundwater supply in the County is contained within five major aquifers beneath the Oxnard Plain-Pleasant Valley area. These aquifers are, in order of increasing depth, the Oxnard, Mugu, Hueneme, Fox Canyon, and Grimes Canyon aquifer zones. Both the Oxnard aquifer in the Oxnard Plain area, and the deeper Fox Canyon aquifer which effectively extends from the present day coastline to inland areas northeast of the City of Moorpark, were previously, or are currently, being overdrafted or "mined" of their resource. This overdrafting of the local water supply has caused a number of problems, most notably seawater intrusion in the Upper Aquifer System (UAS) and Lower Aquifer System (LAS) of the Oxnard Plain. The UAS consists of the Oxnard and the Mugu aquifers. The LAS is comprised of the Hueneme, Fox Canyon and Grimes Canyon aquifers.

Beneath the Oxnard Plain, the gross overdraft of the Oxnard aquifer has been largely eliminated in recent years through effective management practices and constant recharge activities. However, even with targeted improvements, some areas still remain impacted by saline waters previously drawn into the aquifer. Projects such as the Pumping Trough Pipeline (1986), the Freeman Diversion (1991) and the Noble Pit spreading basin (1995), coupled with wet-to-average climatic conditions and reduced pumping, contributed to improving conditions in the UAS. Conditions in the UAS have improved partially at the expense of the LAS, which has been pumped heavily in recent years. The LAS is seriously overdrafted in the southern Oxnard Plain and Pleasant Valley basins, where the intrusion of saline water continues. The United Water Conservation District has constructed a new UAS well field near Saticoy to utilize UAS water that is more easily replenished. This allows an increase in water deliveries, while at the same time helping to alleviate the seawater intrusion problem in the overdrafted areas by providing an underutilized source of water. The Fox Canyon Groundwater Management Agency (FCGMA) has also tightened restrictions and instituted strict management procedures on all groundwater extractions and well operators located on parcels above the Fox Canyon aquifer. For more information about the FCGMA and related management procedures, see the latest draft FCGMA Groundwater Management Plan located on their website at: http://publicworks.countyofventura.org/fcgma/index.htm)

Of the groundwater pumped in Ventura County, less than one-third is delivered by a water system. Individual well owners do most of the groundwater pumping in Ventura County and use it mostly for irrigation.

Many farmers obtain water from their own wells. Water demand from the agricultural sector is decreasing, primarily due to land conversion to urban uses. This trend is expected to continue. Countywide demand for agricultural water is forecasted to decline by about 35,000 AFY by the year 2010. Another 20,000 to 25,000 AF decline may be anticipated between the years 2010 and 2020. Within the boundaries of the Fox Canyon Groundwater Management Agency (FCGMA), a 25 percent reduction in groundwater extractions is being implemented for well owners. Well owners have had to reduce their extractions by 5 percent in 1992, 1995 and 2000,. In October 2006 a revised draft Groundwater Management Plan was released by the FCGMA which contains recommendations for revised policies regarding pumping in the GMA area.

The Calleguas Creek Watershed includes several significant groundwater basins. Water rights have not been adjudicated in every one of these basins, so groundwater production is not comprehensively controlled or maintained. However, groundwater extractions are regulated in the Oxnard Plain, Pleasant Valley Basin, the western portion of the Arroyo Santa Rosa Basin, and all three of the Las Posas Basins (West, East, and South) by the FCGMA. In some basins, groundwater is being over drafted and, as a result, portions of the Pleasant Valley Basin and the Oxnard Plain have experienced up to two feet of subsidence. In other basins, such as the Simi Valley and South Las Posas Basins, groundwater storage has increased significantly in the last several decades, necessitating dewatering operations in order to protect development in the western portion of the city of Simi Valley. This increase is due to a combination of an overall decrease in agricultural use of groundwater because of high total dissolved solid (TDS) levels and return flows from applied imported water supplied to Simi Valley.

Data Needs

A great deal has been learned in the past 20 years about groundwater basin storage, yield, and well locations, however much more has yet to be discovered or determined. Current estimates of the safe yield of the 32 recognized groundwater basins is currently being evaluated, since the historic information is not sufficient or adequate enough to perform individual basin balance equations. Improved monitoring has been implemented. Many private wells do not have meters, so pumping quantities must be estimated based on energy use and crop consumption factors, however, the FCGMA will be enforcing this in the future.

Current and future projects proposed for funding as part of the IRWMP would help to solve the lack of data that presently exists in the areas of surface flows, return flows of applied water, natural recharge and more accurate metering of groundwater usage. In essence, a very good base of data has been compiled, but current gaps need to be addressed through more research and observation.

Surface Water

Surface water resources in Ventura County are divided into major hydrological units or drainage basins such as the Ventura River Watershed and Santa Clara River Watershed, and the Calleguas Creek Watershed. These main units are further subdivided into dozens of subunits.

Surface water is obtained from Lake Casitas, Lake Piru and from diversion projects along the Santa Clara River, Ventura River, Santa Paula Creek, Piru Creek, Sespe Creek and Conejo Creek. Local surface water provides approximately 8.5 percent of the total water utilized in Ventura County.

Conejo Creek: Camrosa Water District operates the Conejo Creek Diversion immediate south of U.S. Highway 101. The diversion was completed in 2002. Through a series of agreements between the City of Thousand Oaks, Calleguas Municipal Water District, the Pleasant Valley County Water District and Camrosa, Camrosa purchases the recycled surface water diverted from Conejo Creek from the City of Thousand Oaks who discharges the tertiary treated water into the creek from their Hill Canyon Treatment Plant well upstream of the diversion. The diversion is governed by a SWRCB water right decision that limits the area of use to Camrosa and Pleasant Valley County Water District's service areas. Recycled surface water surplus to the District's needs is delivered to PVCWD and stored in the PVCWD reservoir located near Camarillo airport.

Lake Casitas (Casitas Reservoir): With a capacity of 254,000 acre feet, Lake Casitas is the largest local reservoir. The approximate safe yield is 20,000 acre feet per year without the Matilija Dam and 20,800 acre feet with the Matilija Dam. About a half of the water that fills Lake Casitas comes from diversions off of the Ventura River from the Robles Fish Passage Facility, which is located a few miles north of Lake Casitas. The water then travels through the Robles Canal to Lake Casitas. The remainder of water supply to Lake Casitas comes from the Coyote and Santa Ana Creeks that both flow into the lake. The Casitas Municipal Water District serves about 65,000 people. Over forty-percent of Casitas' water goes to agricultural customers. Casitas has about 3,200 customers and is considered both a retail and wholesale water agency. Casitas operates one well, the Mira Monte well. It provides a water supply of about 300 acre feet per year. The high quality surface water from Lake Casitas' is mixed with the well water to improve its water quality.

Lake Matilija With less than 500 acre feet of remaining storage, provides approximately 800 acre feet of water per year to Lake Casitas on average through multiple releases during the raining season. Lake Matilija's water supply capacity is diminishing due to silt built-up. It will cease to exist when either completely silted or after the Matilija Dam removal project is complete.

Lake Piru (Piru Reservoir): United Water Conservation District (UWCD) operates and maintains Lake Piru, diversion structures on Piru Creek and the Santa Clara River (Freeman Diversion), and the associated spreading grounds along the Santa Clara River in Piru, Saticoy and El Rio. Several water purveyors and individuals utilize water diverted from the Santa Clara River by UWCD.

Lake Piru is UWCD's storage reservoir for water which is later released into spreading grounds to percolate into underground aquifers. Subsequent uses are wholesaling to retail purveyors, agricultural use, and recharge. The capacity of Lake Piru, which has declined somewhat in the past 10 years, is 83,200 acre feet, with an annual safe yield of 15,000 acre feet per year. UWCD also diverts Santa Clara River water at the Freeman Diversion. Typically around 10,000 to 50,000 AF of water is released downstream each year. Average releases are about 27,000 AFY.

Santa Clara River: UWCD diverts natural surface flows in the Santa Clara River to spreading basins in the Oxnard Forebay basin to replenish the aquifers beneath the Oxnard Plain. UWCD also supplies diverted surface water to agricultural users on the Oxnard Plain and Pleasant Valley area via its Pumping Trough Pipeline (PTP). Releases from Lake Piru in the later summer or fall, when sufficient supplies are available, provide surface flows that act as groundwater recharge but also enhance agricultural deliveries at a time when the Santa Clara River is normally dry.

Ventura River: Ventura River surface water is diverted by the City of Ventura via an in-stream underground dam and group of shallow extraction wells at Foster Park for use in the City's delivery system. A few individual property owners also divert some water from the Santa Clara and Ventura Rivers.

Surface water is also diverted for agricultural use by private individuals along the Ventura and Santa Clara Rivers. Several small mutual water companies, the U.S. Forest Service, and private individuals use wells and springs as their source of water supply.

Imported Water

For the purposes of this Plan, imported water is considered to be water from the State Water Project, delivered to Southern California from the Bay-Delta. State Water is obtained locally by Calleguas Municipal Water District (Calleguas) from the Metropolitan Water District of Southern California (Metropolitan) for delivery to retail purveyors primarily serving the southern and eastern portions of the County, including the Cities of Thousand Oaks, Simi Valley, Moorpark, Camarillo, Port Hueneme and Oxnard and agricultural entities in the region. In recent years, imported water, which is State Project Water from the Sacramento Delta area, amounted to about 25 percent of the water utilized in the County. However, because water quality challenges require imported water to blend with local groundwater supplies, more that 75 percent of the County's population relies on imported water for part or all of its supply.

The UWCD, Casitas MWD, County of Ventura, and the City of Ventura have jointly studied the feasibility of constructing conveyance facilities to import additional State Project Water, to which they collectively hold a yearly entitlement of 20,000 acre feet. Pursuing this entitlement remains a supply option for these agencies; however, analysis of the appropriate institutional and financial arrangements must take place before the participants can plan any facilities construction. The only other way that State Project Water can enter Ventura County, other than through Calleguas via Metropolitan, is from releases out of Lake Pyramid, down Piru Creek, through Lake Piru, and either overflows or planned releases from Santa Felicia Dam into the Santa Clara River. Such imports are arranged by UWCD when conditions are appropriate to facilitate storage and aid in basin management.

The Port Hueneme Water Agency (PHWA) has a long-term lease for 1850 acre feet of UWCD's annual State Water Project entitlement of 5000 AF. PHWA obtains this entitlement indirectly from Calleguas via the City of Oxnard. UWCD has, in recent years, been buying the remaining 3150 AFY from the State Department of Water Resources, which delivers the water from Pyramid Lake via Piru Creek to UWCD's Lake Piru Reservoir. UWCD has, under certain hydrologic conditions, also begun to acquire a portion of the City of Ventura's unused allocation of State Water Project Water.

To further augment local supplies through conjunctive use, Calleguas is constructing the Las Posas Aquifer Storage and Recovery (ASR) Project. The project is jointly funded by Calleguas and Metropolitan (Calleguas/Metropolitan) and will include 30 dual-purpose extraction and injection wells in three fields within the East Las Posas Groundwater Basin. The ASR project will store up to 300,000 acre feet of imported State water for use during peak periods, droughts, scheduled shutdowns or emergencies. The ASR project will have a maximum replenishment rate of 80 cubic feet per second (cfs) and maximum extraction rate of 100 cfs. The project also includes several miles of large diameter pipeline to connect the wells to the Calleguas transmission system, a new pump station in the City of Moorpark to convey water to the Lake Bard Water Filtration Plant and rehabilitation of the Conejo Pump Station, to deliver ASR water to upper elevation zones east of the Moorpark sewage treatment plant during an emergency.

To date, Calleguas has constructed 16 wells and the project currently stores more than 60,000 acre feet of water in the Las Posas Basin. Completion of the final phase is planned for 2012. Calleguas relies both on injection of treated State Project Water and on in lieu supplies provided by retailers that accept direct deliveries of Calleguas/Metropolitan water in lieu of pumping groundwater from the basin.

The ASR project presents several advantages for the management of water supply and demand. State Project Water (originating near the Sacramento Bay-Delta area) can be purchased when available during winter months. Further, storage of this water underground in aquifers several hundred feet beneath the surface of the ground requires no construction of surface reservoirs, the land use is not disrupted, evaporation is not a factor, and costs are substantially less.

When needed during summer months or during times of drought, the stored underground supplies can be easily tapped by extracting the water through the same injection wells.

The initial facilities of the SWP, completed in the early 1970s, were designed to meet the original needs of the SWP contractors. It was anticipated that additional SWP facilities would be built over time to meet projected increases in contractor delivery needs. However, as decisions on these additional facilities were repeatedly deferred, public attitudes and environmental regulations changed. In addition, the contracted needs for water from the SWP have increased. As a result, the SWP is not capable of delivering full contractor entitlement each and every year. DWR reports in its 2005 SWP Delivery Reliability Report that existing SWP contractors will, on average, receive 69 percent of their full Table A amount for 2005 demand conditions and 77 percent of their full Table A amount for 2025 demand conditions.

2.1.9 Water Quality

Water quality is a significant issue affecting the overall available water supply in the Region. Water quality issues include point and nonpoint sources. Point sources are those that are from a well defined source of origin, while nonpoint sources are more difficult to define and originate from more widespread sources. Point sources include wastewater treatment plants, urban stormwater runoff and package treatment plants. Nonpoint source pollution issues in the Region include seawater intrusion, individual sewage disposal systems (septic tanks), , abandoned water wells, agricultural runoff, aggregate resource management and naturally occurring contaminants.

This section includes a discussion of surface and groundwater water quality issues and concerns in each Watershed.

SURFACE WATER QUALITY

Surface water quality is regulated by several State and Federal regulatory agencies. The Federal Clean Water Act (CWA) requires the California Regional Water Quality Control Board (Regional Board) to develop water quality standards which include beneficial use designations and criteria to protect beneficial uses for each water body found within its region. The Regional Board carries out its CWA responsibilities through California's Porter-Cologne Water Quality Control Act and establishes water quality objectives designed to protect beneficial uses contained in the Water Quality Control Plan for the Los Angeles Region (Basin Plan).

As approved by USEPA, the State's official evaluation of its surface water quality is the State Water Resources Control Board's (SWRCB's) biennial water quality assessment and the Clean Water Act 303(d) List of Water Quality Limited Segments. In 2002, California listed 685 water bodies on the 303(d) list, which exceed established water quality objectives. In some cases, a water body is listed for more than one pollutant, and in total, there are currently 1883 polluted water-body listings. About 13 percent of the total miles of California's rivers and streams, and about 15 percent of its lake acreage, are now listed as limited under the 303(d). As of 2002, advisories warning against fish consumption, an indirect indicator of surface water quality, were posted for 18 percent of

California's lakes, while less than 1 percent of the state's rivers were similarly posted (2005 California Water Plan).

As described in the Regional Water Quality Control Board (L.A. Region) Watershed Management Initiative (WMI), current strategies by the State to improve water quality are now approached on an integrated, watershed level:

"For the initial implementation of the WMI, during the late 1990s, each Regional Board identified the watersheds in their Region, prioritized water quality issues, and developed watershed management strategies. These strategies and the State Board's overall coordinating approach to WMI are contained in the Integrated Plan for Implementation of the WMI which is updated annually. In following years, the Regional Boards have continued to build upon their early efforts to utilize this approach. The full version of our WMI Chapter outlines our ongoing efforts to continue implementation of the WMI."

Surface Water Quality Monitoring and Assessment

Only a small percentage of California water bodies are regularly monitored and assessed for water quality or for the appropriate contaminants of concern. Once data is collected, it is too often not assessed or evaluated. To address this need the State Legislative created the Surface Water Ambient Monitoring Program (SWAMP) in order to integrate existing water quality monitoring activities of the State Water Resources Control Board, and Regional Water Quality Control Boards, with other monitoring programs. One of SWAMP's key objectives is to create a coordinated statewide monitoring effort to assess the conditions of surface waters throughout the state of California, and capture monitoring information collected under the State's TMDL, Nonpoint Source, Agricultural Waiver and Stormwater Programs.

Beginning in 1999, a new law (AB411) required public health officials in coastal counties to conduct weekly testing, between April 1 and October 31, at beaches visited annually by more than 50,000 people and at adjacent storm drains (including natural creeks, streams, and rivers, that flow during the summer). The County of Ventura Environmental Health Division, monitors numerous locations on a weekly basis from April through October, from Rincon Beach south of the creek (near the Santa Barbara County line) to Staircase Beach, located at the north end of Leo Carrillo State Beach. In addition, samples are collected by the City of Oxnard, Channelkeepers and others.

For the sixth year in a row, overall water quality at Ventura County beaches in 2005 was excellent and proved to be the best water quality in Southern California for that year, though there were beach closures throughout the year. Of the water quality monitoring locations during summer dry weather, 98 percent of the locations received good-to-excellent water quality marks. The only Ventura County beach to receive a summer dry weather grade lower than a B was San Buenaventura Beach south of the drain at San Jon Road. For the second year in a row, the Hobie/Kiddie Beach monitoring locations in Channel Islands Harbor have seen improved water quality. There were no known sewage spills that led to beach closures in Ventura County in 2005.

The following discussion is taken from Regional Water Quality Control Board Watershed Management Initiatives for local watersheds.

Excerpt from RWQCB website:

(http://www.waterboards.ca.gov/losangeles/html/programs/regional_programs.html#Watershed):

To protect water resources within a watershed context, a mix of point and nonpoint source discharges, ground and surface water interactions, and water quality/water quantity relationships must be considered. These complex relationships present considerable challenges to water resource protection programs. The State and Regional Boards are responding to these challenges with the Watershed Management Initiative (WMI). The WMI is designed to integrate various surface and ground water regulatory programs while promoting cooperative, collaborative efforts within a watershed. It is also designed to focus limited resources on key issues and use sound science.

Ventura River Watershed - Water Quality Problems and Issues

The Ventura River and its tributaries drain a coastal Watershed in western Ventura County. The Watershed covers a fan-shaped area of 228 square miles, which is situated within the western Transverse Ranges (the only major east-west mountain ranges in the continental U.S.). From the upper slopes of the Transverse Ranges, the surface water system in the Ventura River Watershed generally flows in a southerly direction to an estuary located at the mouth of the Ventura River. Groundwater basins composed of alluvial aquifers deposited along the surface water system are highly interconnected with the surface water system and are quickly recharged or depleted, according to surface flow conditions. Topography in the Watershed is rugged, and as a result, the surface waters that drain the Watershed have very steep gradients, ranging from 40 feet per mile at the mouth to 150 feet per mile at the headwaters.

Beneficial Uses in Watershed:

Estuary	*Above Estuary*
Navigation	Municipal supply
Commercial & sportfishing	Industrial service supply
Estuarine habitat	Industrial process supply
Marine habitat	Agricultural supply
Contact & noncontact water recreation	Contact & noncontact water recreation
Warmwater habitat	Warmwater habitat
Wildlife habitat	Wildlife habitat
Preservation of rare & endangered species	Preservation of rare & endangered species
Migratory & spawning habitat	Migratory & spawning habitat
Wetlands habitat	Wetlands habitat
Shellfish harvesting	Coldwater habitat
	Groundwater recharge
	Freshwater replenishment

The majority of water quality problems involve eutrophication (excessive nutrients and effects), especially in the estuary/lagoon although some DDT and metals have been found in mussel and fish tissue. A large storm drain enters the river near the estuary and homeless persons live in and frequent the riverbed. Sediment in the estuary, however, appears relatively uncontaminated and in laboratory tests conducted through the Bay Protection and Toxic Cleanup Program (BPTCP), little sediment toxicity was found. In some subwatersheds, high TDS concentrations impair the use of

water for agriculture. The Watershed's water quality problems are, for the most part, nonpoint source-related, and some incidents of releases of toxic materials from storm drains entering the lower river.

There is only one major discharger, the Ojai Valley Sanitary District, a small Publicly Owned Treatment Works (POTW) (3.0 MGD) in the middle reach of the Ventura River with tertiary treatment which produces a high quality effluent. The most recent monitoring has shown the quality of the effluent has significantly improved. Most of the seven NPDES permittees in the Watershed discharge to the main river. Of the 37 dischargers enrolled under the general industrial stormwater permit in the Watershed, the majority are in the city of Ventura. Wineries and oil-related activities are most prominently represented. Most of the facilities are under ten acres in size.

The Ventura River Watershed

- Eutrophication concerns, especially in lagoon
- Some bioaccumulation of DDT and metals
- TDS concerns in some subwatersheds
- Impediments to steelhead trout migration (but much high quality habitat)
- More nonpoint source rather than point source problems

Water diversions, dams, and groundwater pumping also are thought to limit surface water resources needed to support a high quality fishery. Reduced water supplies affect water quality and thus beneficial uses, particularly with regards to the endangered steelhead trout (steelhead trout are known to utilize the River and some of its tributaries historically supported annual steelhead runs of 5000 – 6000 adults).

Increased nutrient levels are also a concern along the watershed, due to private and commercial equestrian operations.

Sanitary Sewer Line Breaks

There have been eight major sewage spills due to storm damaged lines over the past 40 years. Most of the sewer lines were constructed in the 1960s and many were placed in locations subject to storm flows without adequate protection. These lines have been damaged resulting in sewer spills of million of gallons over several days. These result in lost use of the Watershed and beaches for recreation, and the City of Ventura must curtail taking water from the Ventura River until the waters have been confirmed to be clear of contamination.

Santa Clara River Watershed - Water Quality Problems and Issues

The Santa Clara River is the largest in Southern California (1634 square miles) that remains in a relatively natural state. The approximately 84-mile long river originates in the northern slope of the San Gabriel Mountains in Los Angeles County, traverses Ventura County, and flows into the Pacific Ocean between the Cities of Ventura and Oxnard.

Extensive patches of high quality riparian habitat are present along the length of the river and its tributaries. The endangered fish species, the unarmored stickleback and southern California steelhead, are resident in the river. One of the largest of the Santa Clara River's tributaries, Sespe Creek, is designated a wild trout stream by the State of California and supports significant spawning and rearing habitat. The Sespe Creek is also designated a wild and scenic river. Piru and Santa Paula Creeks, which are tributaries to the Santa Clara River, also support good habitats for steelhead. In addition, the river serves as an important wildlife corridor. A lagoon exists at the mouth of the river and supports a large variety of wildlife.

Beneficial Uses in Watershed:

Estuary	*Above Estuary*
Contact & noncontact water recreation	Contact & noncontact water recreation
Wildlife habitat	Wildlife habitat
Preservation of rare & endangered species	Preservation of rare & endangered species
Migratory habitat	Migratory habitat
Wetlands habitat	Wetlands habitat
Spawning habitat	Municipal supply
Estuarine habitat	Industrial service supply
Marine habitat	Industrial process supply
Navigation	Agricultural supply
Commercial & sportfishing	Groundwater recharge
	Freshwater replenishment
	Warmwater habitat
	Coldwater habitat

Threats to water quality include increasing development in floodplain areas which has necessitated channelization, resulting in increased runoff volumes and velocities, erosion, and loss of habitat. In many of these highly disturbed areas the exotic giant reed (*Arundo donax*) has become rampant and represents a significant threat.

There are four major NPDES dischargers (all Publicly Owned Treatment Works (POTWs), 11 minor dischargers, and 15 enrolled under general NPDES permits (non-stormwater). Included in the latter facilities are POTWs which discharge to percolation or evaporation ponds.

Various reaches of the Watershed are 303(d)-listed as impaired for nutrients (and related effects), bacteria, salts, trash, and legacy pesticides.

The Santa Clara River Estuary and Beach is on the 2002 303(d) list for coliform while a portion of the river upstream of the estuary is listed for ammonia and coliform. Portions of the river have chloride exceedances. The Estuary is also listed for toxaphene and residual amounts of other legacy pesticides in fish tissue. Two small lakes in the Watershed are also on the 303(d) list for eutrophication, trash, DO, and pH problems. Natural oil seeps discharge significant amounts of oil into Santa Paula Creek. Despite their comparatively good overall water quality, there are elevated levels of salts in some large tributaries which may be in some cases from natural sources or in others may be remnant discharges of brine from abandoned oilfields.

The following list of efforts are underway to address water quality

- Upper Santa Clara River Chloride TMDL – Implementation plan in development.
- Nutrient (nitrogen compounds) TMDL – Identified wastewater treatment facilities as the major contributor of nitrogen compounds loadings with nonpoint sources and minor point sources contributing a much smaller fraction of these loads. In addition, agricultural runoff and malfunctioning or leaking septic systems contribute to high nutrient levels.
- Fillmore Wastewater Treatment Plant – Surface water discharge will phase out by 2008 and become a groundwater discharge (percolation) or a reclamation plant.
- Santa Paula Wastewater Reclamation Plant – Will become Title 22 compliant and go to full reclamation sometime after 2008.

- The Ventura Water Reclamation Facility has been reclaiming water for landscape irrigation since the mid 1960's and has been providing tertiary treatment for irrigation water since 1973. Since that time a portion of the effluent has been discharged to the Santa Clara River Estuary. Operating under a habitat enhancement exemption since 1976, it is currently mandated by its NPDES permit to discharge at least 5.6 MGD to the estuary for habitat support. The Los Angeles Regional Water Quality Control Board is reconsidering the enhancement demonstration and minimum discharge requirement as part of the renewal process for the NPDES permit.

Calleguas Creek Watershed – Water Quality Problems and Issues

Calleguas Creek and its major tributaries, Revolon Slough, Conejo Creek, Arroyo Conejo, Arroyo Santa Rosa, and Arroyo Simi drain an area of 343 square miles in southern Ventura County and a small portion of western Los Angeles County. This Watershed, which is elongated along an east-west axis, is about 30 miles long and 14 miles wide. The northern boundary of the Watershed is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains.

Land uses vary throughout the Watershed. Urban developments are generally restricted to the city limits of Simi Valley, Moorpark, Thousand Oaks, and Camarillo.
Mugu Lagoon, located at the mouth of the Watershed, is one of the few remaining significant saltwater wetland habitats in southern California.

Naval Base Ventura County Point Mugu is located in the immediate area, and the surrounding Oxnard Plain supports a large variety of agricultural crops. The Lagoon borders on an Area of Special Biological Significance (ASBS) and supports a great diversity of wildlife including several endangered birds and one endangered plant species. Except for the military base, the lagoon area is relatively undeveloped.

Beneficial Uses in Watershed:

Estuary	*Above Estuary*
Wildlife habitat	Wildlife habitat
Contact & noncontact water recreation	Contact & noncontact water recreation
Estuarine habitat	Industrial service supply
Marine habitat	Industrial process supply
Preservation of rare & endangered species	Preservation of rare & endangered species
Navigation	Agricultural supply
Preservation of biological habitats	Groundwater recharge
Wetlands habitat	Wetlands habitat
Migratory & spawning habitat	Freshwater replenishment
Shellfish harvesting	Warmwater habitat

Aquatic life in both Mugu Lagoon and the inland streams of this Watershed has been impacted by pollutants from nonpoint sources. DDT, PCBs, other pesticides, and some metals have been detected in both sediment and biota collected from surface waterbodies of this Watershed. Additionally, ambient toxicity has been revealed in several studies from periodic toxicity testing in the Watershed (ammonia from POTWs and pesticides such as diazinon and chlorpyrifos are implicated). Fish collected from Calleguas Creek and Revolon Slough exhibit skin lesions and have been found to have other histopathologic abnormalities. High levels of minerals and nitrates are common in the water column as well as in the groundwater. Sediment toxicity is also elevated in some parts of the lagoon.

Overall, this is a very impaired Watershed. It appears one source of these pollutants are agricultural activities (mostly through continued disturbance and erosion of historically contaminated soils), which cover approximately 25 percent of the Watershed along the inland valleys and coastal plain, although the nearby naval facility has also been a contributor. Other

nonpoint sources include residential and urban activities, which are present over approximately 25 percent of the Watershed.

Primary issues related to POTW discharges include ammonia toxicity and high mineral content (i.e., salinity), the latter, in part, due to imported water supplies.

Discharges are fairly evenly spread around the Watershed; 6 of the 24 NPDES discharges go to the Arroyo Conejo, while discharge to Revolon Slough and lesser numbers discharge to the Creek's various reaches.

Of the 73 dischargers enrolled under the general industrial stormwater permit in the Watershed, the largest numbers are located in the cities of Simi Valley and Camarillo. There is a diverse mix of industries represented including auto wrecking, sand and gravel operations, production of electronics, transit, and trucking.

Other Ventura Coastal Watershed Management Areas – Water Quality Problems and Issues

The Watershed Management Areas is composed of four separate coastal drainage areas located along coastal Ventura County typified by either small coastal streams, wetlands, or marinas.

Channel Islands Harbor: The Harbor is on the 2002 303(d) list for lead and zinc. During the early to mid-1980s, the State Mussel Watch Program (SMWP) found low to intermediate levels of metals and organics except for one especially high accumulation of DDT. Sediment sampling for metals in 1988 revealed slightly to moderately elevated levels. Copper at one site was nearly 50 ppm and zinc was as high as 76 ppm. Arsenic was slightly elevated (4 ppm) at a sampling site located next to a drain possibly connected to a nearby agricultural field.

Port Hueneme Harbor: The Harbor is on the 2002 303(d) list for PAHs, DDT, PCBs, TBT, and zinc. The SMWP has found elevated levels of Cu, Zn, PAHs, and PCBs. Zinc was at elevated levels on the commercial side while PCBs were very high on the Navy side. Sediment core samples were collected in 1985 and 1996 as part of a proposed dredge project. Relatively low levels of metals were found and no pesticides were detected.

The harbors
- One deepwater harbor and two small-craft marinas
- Accumulation of metals, PCBs, and historic pesticides in sediment and tissue
- S
- upport considerable marine life

The wetlands and coast
- Historic pesticide contamination
- Loss of quality habitat
- Impacts from oil spills
- Use by endangered species

Ventura Marina: The Ventura Keys, a residential development with small boat channels adjacent to the Marina, is on the 2002 303(d) list for coliform problems. The City of Ventura monitors six stations within the Keys and the nearby Arundell Barranca for coliform on a regular basis. The

SMWP has found moderately elevated levels of metals, DDT, and chlordane in the marina from sampling conducted in the late 1980s; however, it is not listed as a site of concern under the BPTCP.

McGrath Lake: The Lake is on the 2002 303(d) list for pesticides. The BPTCP found varying amounts of sediment toxicity and sediment levels of many pesticides were very high; the lake is listed as a toxic hot spot due to sediment concentrations of DDT, chlordane, dieldrin, toxaphene and endosulfan above sediment quality guidelines. A major crude oil spill into the lake occurred in late 1993 and runoff from nearby agricultural fields is ongoing.

Open Coastline: In the past, little is known of water quality in the Ormond Beach area. The Oxnard Treatment Plant discharges secondary effluent to the ocean off adjacent to the City of Oxnard. The City of Oxnard now tests the water at various locations along the Ormond Beach area.

Of the 82 dischargers enrolled under the general industrial stormwater permit in the Watershed, the majority occur in the city of Oxnard. Many of these businesses are involved with trucking, food packing, or watercraft maintenance.

GROUNDWATER QUALITY

In contrast with most of California, approximately 67 percent of the water needs in Ventura County are supplied by groundwater resources. The quality and protection of this vital resource is therefore of considerable interest, attention and concern. Most groundwater is pumped from 10 major groundwater basins and 7 minor groundwater basins. There are 15 additional areas in the county where groundwater is considered to exist in recoverable quantities.

Statewide – Groundwater Quality

In each of the state's hydrological regions, 24 percent to 49 percent of public water supply wells exceeded one or more MCLs, usually for inorganic chemicals or radioactivity. As a result of manmade contamination from agricultural practices and septic tanks, nitrate, which presents a known, short-term health risk, has closed more public water wells statewide than any other contaminant. Other groundwater contaminants of concern, including arsenic and hexavalent chromium (or chromium-6), are chronic (i.e. long-term health risks, such as cancer or reproductive and endocrine system dysfunction). Another common groundwater contaminant, salinity—is a concern for taste as well as water facility longevity. A different indicator of groundwater contamination caused by leaking underground fuel tanks, has steadily declined after peaking in 1995, due primarily to the success of regulatory action. In addition to underground storage tanks, older landfills and hazardous waste disposal sites are also common sources of groundwater contamination, and abandoned wells can provide a ready conduit for aquifer contamination (2005 California Water Plan).

Groundwater Quality Records and Sampling

Currently the Groundwater Resources Section of the Ventura County Watershed Protection District (VCWPD) obtains and coordinates analysis of approximately 120 groundwater samples in selected areas. This practice started in the mid-to-late 1930s by the California Department of Water Resources (DWR) and continued by the predecessor agency to the local United Water Conservation District (UWCD), the Santa Clara River Water Conservation District. The County of Ventura

officially assumed the task in 1970 when a formal water well permitting and monitoring program was begun.

To date, over 10,000 individual water quality records have been entered into the County's database. Another 1000 or more records predating 1970 are contained within paper copy format. These water quality records reflect general mineral constituents found in most groundwater basins within the County.

In May 2005, VCWPD conducted groundwater sampling at 56 locations throughout the County. Samples collected were analyzed for general minerals (calcium, magnesium, potassium, sodium, carbonate, bicarbonate, sulfate, chloride, nitrate, phosphate, fluoride, boron, copper, iron, manganese, zinc) pH, lab E.C., and SAR along with some specialized tests for heavy metals or radio chemistry (gross alpha, and uranium count). Some samples were also analyzed for Title 22 metals.

Water Quality in the Fox Canyon Groundwater Management Agency (FCGMA) Area:

The following information has been excerpted from the Draft FCGMA Groundwater Management Plan Update (October 2006). For more information the document can be found on the GMA website at:
http://publicworks.countyofventura.org/fcgma/index.htm

Seawater intrusion has long been the primary water concern within the FCGMA and was the problem for which the FCGMA was originally formulated to help fix. The intrusion occurs exclusively along the coastline in the Oxnard Plain basin. The U.S. Geological Survey also identified another type of saline intrusion on the Oxnard Plain – salts moving from the surrounding marine clays and older geologic units as pressure in the aquifers is reduced from overpumping. This type of intrusion may also be occurring on a minor scale in the Pleasant Valley basin. Chloride has also become a problem along Arroyo Las Posas, where groundwater from an area in the East and South Las Posas basins must be blended with lower-chloride water to meet irrigation suitability. This problem appears to have migrated downstream, with some of the City of Camarillo's wells now affected.

Chloride is also a problem in the Piru basin near the Los Angeles County line, where high chlorides from discharge of wastewater treatment plants along the Santa Clara River have degraded the recharge water for the basin. This chloride problem is currently isolated to the Piru basin, although long-term recharge of poorer quality water could eventually move through the groundwater basins along the Santa Clara River and reach the Freeman Diversion.

High nitrate concentrations in groundwater are a localized problem in the Oxnard Plain Forebay and Santa Rosa basins. In and adjacent to the Forebay, nitrates affect drinking water wells of UWCD's Oxnard-Hueneme wellfield, mutual water companies, and the City of Oxnard, particularly during and following dry periods.

Seawater Intrusion on the Oxnard Plain

The significant water quality issue on the Oxnard Plain basin is saline intrusion from both seawater and from surrounding marine sediments. See Figure 2-2 below.

High chloride levels were first detected on the Oxnard Plain in the vicinity of the Hueneme and Mugu submarine canyons in the early 1930s (California Department of Water Resources, 1954,

1971) and became a serious concern in the 1950s. Early monitoring programs used only existing production wells and abandoned wells as monitoring points; sampling of these wells indicated a widespread area of elevated chloride concentration in the Hueneme to Mugu areas. Current efforts to reduce groundwater extractions and replace previous water demands with diverted surface water or imported water have significantly improved the situation in the Oxnard and Mugu aquifers.

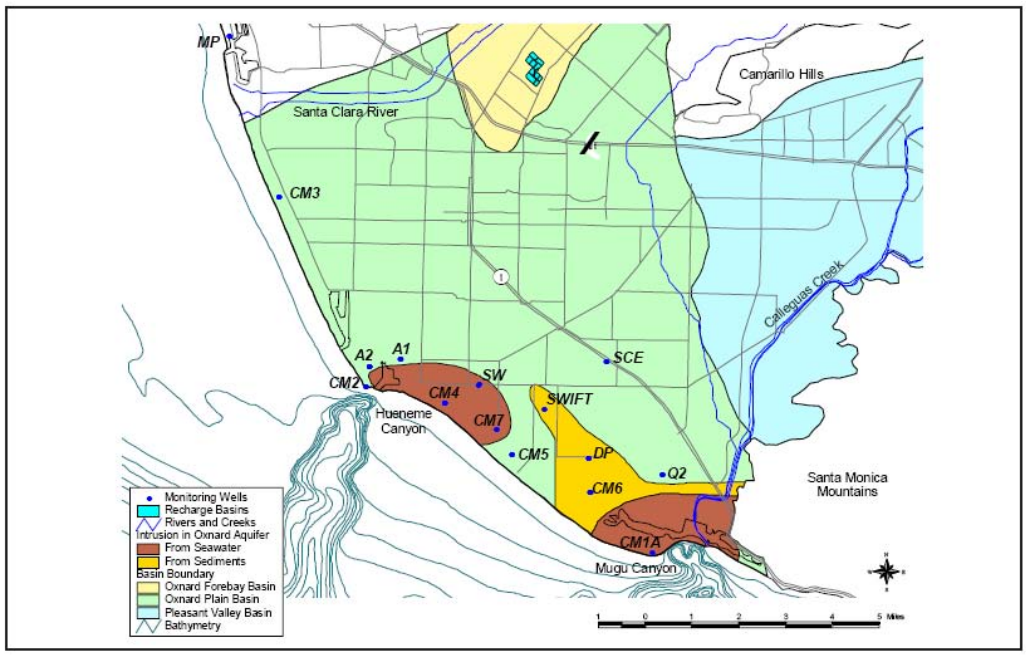


Figure 2-2 Seawater Intrusion on the Oxnard Plain

Nitrate in Groundwater

The primary sources of nitrate are septic systems (especially if they are poorly maintained or being used above design capacity) and agricultural fertilizer.

The Oxnard Forebay is a prime groundwater recharge area that is impacted by nitrogen discharges, mainly from densely populated communities using septic systems, and agricultural areas. The Forebay is a vital part to the County's water resources. Approximately 250,000 people obtain at least a portion of their water supplies from water originating in the Forebay. The County of Ventura and Regional Board undertook a study of septic systems in the area and in August 1999 the Regional Board adopted a Basin Plan amendment to prohibit septic systems in the unincorporated areas of El Rio. The amendment prohibits the installation of new septic systems or the expansion of existing septic systems on lot sizes of less than five acres. Discharges from septic systems on lot sizes of less than five acres must cease by January 1, 2008. This prohibition will affect up to 3000 septic systems and 10,000 to 15,000 people.

Department of Defense Cleanup Program/Naval Base Ventura County

The Regional Board is working with the Department of Toxic Substances Control (DTSC) to investigate soil and groundwater quality at Naval Base Ventura County from past practices. Sites currently under assessment/remediation at the Naval Base include Mugu Lagoon, a former landfill,

the Navy Exchange gas station, numerous underground storage tanks sites, and the former oxidation sewage ponds.

Underground Storage Tank Program

The Leaking Underground Fuel Tanks (LUFT) Program is the local oversight program and lead agency that regulates soil and groundwater cases within Ventura County involving releases from underground storage tanks (UST's) that contain gasoline, diesel, waste oil and other petroleum hydrocarbons. The County of Ventura has entered into a contract with the State Water Resources Control Board to be the lead agency that regulates cleanup of unauthorized releases from UST's within Ventura County.

GROUNDWATER QUALITY BY BASINS

Oxnard Plain Pressure Basin

A short summary of each of those aquifers (listed by increasing depth) and the accompanying water quality that exists within each particular zone has been included below:

- **Perched/Semi-perched aquifer** – Water quality is usually classified as unsuitable for almost all uses in this very shallow unconfined zone. Only a couple of known active water extraction wells are perforated in this zone due to contamination from pesticides, herbicides, leaking underground petroleum and chemical tanks, surface spills, and a high dissolved salt content. Total dissolved solids (TDS) average 2700 mg/l in most areas. Perched water can often be found only a few feet beneath the surface in many locals within the Oxnard Plain.

- **Oxnard aquifer** – This is the shallowest of the confined aquifers, and therefore the least expensive to drill into for purposes of obtaining acceptable quality water in sufficient quantity. Iron counts can be elevated, and total dissolved solids typically average 800 to 1200 mg/l.

  The Oxnard aquifer is intruded by saltwater near the coastline, between Port Hueneme and Point Mugu. Plumes of excessive nitrate are not uncommon in the northern portion of the Basin, and usually appear or develop during late summer or fall when rainfall is at a minimum.

- **Mugu aquifer** – The Mugu has many of the same characteristics and quality compared to the Oxnard aquifer. This lowest layer of the Upper Aquifer System averages 900 mg/l TDS and differs from the Oxnard aquifer by its slightly higher base temperature and an occasionally higher chloride concentrations.

- **Hueneme aquifer** – The first of the Lower Aquifer System layers, the Hueneme, has a slightly higher water temperature than aquifers closer to the surface, and generally shows somewhat elevated sulfate, iron, and manganese. Nitrate and hydroxides are very low in most samples analyzed. Water quality ranges from 370 to 2880 mg/l TDS, with a mean value of 920 mg/l.

- **Fox Canyon aquifer** – Average TDS values are usually in the 580 mg/l range, with the best water just over 200 mg/l, however, some samples have produced TDS readings of 900 mg/l or higher. Generally not penetrated by wells until they exceed 600-700 feet in depth, this water is expensive to access, but the cost is offset by good water quality and high flow rates. For more information about the FCGMA and related management procedures, see the latest draft FCGMA Groundwater Management Plan located on their website at: http://publicworks.countyofventura.org/fcgma/index.htm)

- **Grimes Canyon aquifer** – Like the Fox Canyon zone immediately above, the Grimes shares many of the same water quality and has similar production rates. Average total dissolved solids are 510 mg/l, with bicarbonate being the dominant anion.

Oxnard Plain Forebay Basin

Acting as the principal recharge area for the much larger Oxnard Plain, the Forebay (or Montalvo Basin) has generally acceptable water quality. Average TDS values in groundwater are typically in the 800 to 1600 mg/l range. The average TDS level for all samples on file at the County Water Resources Division is 900 mg/l.

West Las Posas Basin

The water quality of the West Las Posas Basin currently meets standards for irrigation and drinking water use. Within the pumping depression in the far eastern portion of the Basin, samples from two wells have had increased chloride concentrations since 2004. It is not clear if this is the beginning of a trend or if these chlorides were transported into the Basin from the shallow aquifer is generally located along Arroyo Las Posas in the East Las Posas Basin.

East Las Posas Basin

High chloride levels in the portion of the Basin along the Arroyo Las Posas continue to be a problem in the East Las Posas Basin. These high chloride concentrations are associated with historically high groundwater levels that apparently leach salts from previously unsaturated sediments in the shallow aquifer along the Arroyo. The groundwater that contains these chloride-rich salts recharges the Lower Aquifer System by moving downward from the shallow aquifer into the LAS, then northward into the Basin. This recharge has formed a chloride-rich recharge mound beneath the Arroyo Las Posas.

South Las Posas Basin

Water quality in the South Las Posas Basin is dominated by the movement of salts discussed in the previous section. The progressive filling of the shallow aquifer of the South Las Posas Basin progressed from the upstream to the downstream portions. Two wells completed in the shallow aquifer beneath the Arroyo that have had elevated salts for 20 years have shown a lessening of salinity in the past two years.

Primarily agricultural in land use, the South Las Posas Basin has generally good groundwater quality. TDS typically ranges between 600 and 1400 mg/l depending upon well depth and location, with the average for all samples on file at 709 mg/l. The deeper Fox Canyon and Grimes Canyon aquifer waters yield the best groundwater quality in the 600-700 mg/l TDS range, with shallow river alluvium producing the less desirable water. (2005 WPD Sampling).

Pleasant Valley Basin

Saline intrusion from surrounding sediments and salinity associated with high groundwater levels are the primary water quality concern in the Pleasant Valley Basin. The potential for saline intrusion continues in the depressed groundwater elevations in the Lower Aquifer System of the Pleasant Valley Basin (2006 GMA Management Plan).

Average TDS values in groundwater cover a broad range and are generally found to be 700-1250 mg/l in most samples. During drought years however, TDS levels in some wells can range up to 2000 mg/l, and values as high as 3500 mg/l have even been recorded. The average TDS value for all samples on file equals 1110 mg/l. (WPD 2005 Sampling).

Piru Basin

Similar to the Fillmore Basin directly downgradient, the Piru Basin contains groundwater with TDS values averaging 1430 mg/l. Sulfate often exceeds the MCL for drinking water, but is tolerated by the primarily agricultural groundwater uses (citrus irrigation). Calcium carbonate and TDS values can become excessive within certain wells. None of the 2005 sampled wells showed gross alpha readings above the maximum contaminant level (MCL) for drinking water and only one showed nitrate concentration above the MCL, but 11 wells had TDS concentrations greater than the MCL and 4 of those were more than double the MCL.

The best quality groundwater can be found in shallow river alluvium. However, TDS values of 2000 mg/l or higher have been detected in some wells near the edge of the Basin.

Salinity issues are a concern in the Piru Basin near the Los Angeles County line, as well as in the Fillmore and Santa Paula Subbasins of the Ventura County portion of the Santa Clara River Watershed. There are currently 12 salinity-related section 303(d) listings for chloride, total dissolved solids (TDS), Sulfur and Boron for surface water bodies in the Ventura County portion of the Santa Clara River Watershed. A regional solution needs to be considered to manage these salt issues and concerns in the Santa Clara River Watershed.

Fillmore Basin

Water quality is considered acceptable for almost all agricultural uses, with TDS typically between 800 and 1600 mg/l in most well samples. Average TDS for the Basin is 1096 mg/l. Certain wells perforated only in the deeper San Pedro formation have shown surprisingly good quality water. Shallow wells less than 100 feet in total depth located in or near the Santa Clara River have also produced good quality water.

Santa Paula Basin

Water quality in the Santa Paula Basin average 1089 mg/l for all TDS samples taken. Typical TDS values range from 800 to slightly over 2000 mg/l in the Basin. Calcium carbonate, a measure of water hardness, and alkalinity levels remains high with sulfate and bicarbonate being major contributors to overall water quality. Occasional high manganese readings can be found at selected wells.

The best quality water is usually found near the center of the Basin or in shallow wells located in or near the Santa Clara River. Wells around the perimeter of the Basin, especially those located near Wheeler Canyon or Aliso Canyon on the north side, or South Mountain on the south side, show markedly inferior water quality caused by underflows from surrounding bedrock.

Mound Basin

The Mound Basin is generally divided into the Upper Zone (from ground surface to 300 feet) and the Lower Zone (from 450 to over 1000 feet below grade). Most active water wells (regardless of use) are perforated in deep (Lower) water bearing zones.

TDS values typically range from 1100 to 1900 mg/l in the lower aquifers, with certain layers producing notably better quality water than others. Wells perforated below 250 feet generally show TDS values of about 1,230 mg/l. Irrigation, municipal, and domestic wells in the Mound Basin usually produce groundwater with a calcium sulfate character making this a “hard” water area.

Cuyama Valley Basin

Sparsely settled, the southern end of the Cuyama River Valley lies within Ventura County. The rock types surrounding the Cuyama Basin are high in evaporate minerals such as calcium carbonate, boron, silica, and various salts. These bedrock formations have a direct influence with average TDS of 1660 mg/l and unsuitable for most potable and agricultural needs.

Thousand Oaks Basin

The Thousand Oaks Groundwater Basin consists of a shallow, linear, alluvial fill accumulation located mainly along the U.S. Highway 101 freeway corridor. Like Simi Valley, this area was once agriculturally based with many small farms and ranches. Shallow domestic wells were very common in the Basin often heavily clustered and competing for limited groundwater supplies. Data collection over the last 15-20 years has therefore been limited since most of these old wells have been destroyed to make room for new development. Only one water well was sampled in 2005 showing elevated concentrations (greater than MCL) of TDS, sulfate and iron.

Arroyo Santa Rosa Basin

The Arroyo Santa Rosa Basin receives most of its water replenishment from Conejo Valley and Thousand Oaks Basin surface runoff, including discharges from the Thousand Oaks Hill Canyon Wastewater Treatment Plant. Iron, nitrate and sulfate levels are usually high, and TDS concentrations typically range from 750-1000 mg/l with 817 mg/l the overall average.

Because of the high number of individual septic disposal systems (the area is not served by sewers), and the widespread use of agricultural fertilizers, groundwater nitrate (NO_3) levels are usually high, and many exceed the MCL for drinking water of 45 mg/l. Of the five wells sampled in Arroyo Santa Rosa Basin in 2005, four showed nitrate concentrations of over 45 mg/l, and one had TDS concentration greater than the MCL. High pH, with values in the 8.2-8.6 range are commonly detected in area groundwater.

Lockwood Valley Basin

The Lockwood Valley Basin is really a collection of several small stream channels with shallow sedimentary fill and a couple of small, flat "valley" floors created by alluvial fans from the surrounding foothills. TDS averages 821 mg/l for all wells tested to date with individual sites ranging from 350 mg/l to over 1900 mg/l. Some wells in the north half of the county show high fluoride concentrations. High gross alpha counts have recently been detected in at least four wells in the Boy Scout Camp Road area west of Lockwood Valley Road. Analytical testing laboratories have determined that the radioactivity source is uranium. High pH is common in the samples on file, many in the 7.9-9.2 range.

Tierra Rejada Basin

Groundwater recharge is slow here due to fine-grained silt and clay dominated surface soils, a shallow alluvium, and minimal fractures in the relatively hard underlying volcanic basalts. Average TDS in the Basin is 674 mg/l, with a range of 330-930 mg/l. Naturally occurring iron and nitrates are current threats to continued better-than-average groundwater quality.

Conejo Valley Basin

The Conejo Valley Basin is comprised of shallow fine-grained alluvium (50-100 feet thick) overlying fractured volcanic basalts. TDS values range from 405 to 1620 mg/l in all wells tested with a 790 mg/l average. Iron and calcium carbonate levels often approach the limit for drinking water standards.

Gillibrand or Tapo Canyon Basin

Primarily a sand and gravel mining area, the Gillibrand or Tapo Basin's TDS concentration in groundwater average 693 mg/l for all samples on file.

Lower Ventura River Basin

The Lower Ventura River Basin is at the downstream end of several significant surface and groundwater drainage areas and as such is subject to variable water quality inputs. Some of this input water is of very poor quality due to human activity and land use (livestock ranches, oil fields, urban runoff, etc.), but some quality problems can be attributed to surrounding natural rock types and soil constituents. Despite the various inputs, groundwater TDS quality remains relatively acceptable at 900 mg/l throughout most of the year. TDS values can range between 1100 and 3000 mg/l during extended dry spells.

Upper Ventura River Basin

The Upper Ventura River Basin is characterized by thin alluvial deposits with the Ventura River as the dominant recharge source and contributions from San Antonio Creek (which drains the Ojai Valley), Lion Canyon Creek (which drains the Upper Ojai Valley), and Matilija Creek (which drains the mountain areas to the north). Groundwater TDS average 680 mg/l. Groundwater quality does vary however, with elevated nitrate from ranching operations common along San Antonio Creek and occasional high fluoride, iron, potassium, and manganese concentrations in other portions of the Basin.

Ojai Basin

Groundwater is the dominant supply source in the unconfined eastern three-quarters of the valley and around the valley perimeter. Overall water quality is considered good for most intended uses with typical TDS values ranging between 500 and 800 mg/l with average TDS for all wells tested in 2005 equaling 691 mg/l. Past sampling results indicate medium to high nitrate concentrations in many areas but with low boron, manganese, and iron. One tributary canyon north of the valley has shown elevated fluoride levels from groundwater extraction wells located there.

In 1991, the Ojai Basin was placed under the jurisdiction of the Ojai Valley Basin Groundwater Management Agency (OVBGMA) by the California Legislative.

Upper Ojai Basin

The Upper Ojai Basin is a small linear valley located southeast of, and at a higher elevation than, the larger Ojai Valley Groundwater Basin directly adjacent to the northwest. The total range for TDS in all samples taken is 250-1425 mg/l, with average TDS for all samples on file at 549 mg/l.

Average thickness of water-bearing deposits is approximately 60 feet, and the total groundwater-in-storage is estimated at less than 5000 acre feet most years. Elevated levels of nitrate, iron, or chloride can also occur in Upper Ojai Basin wells, making this an impaired groundwater Basin.

2.1.10 Water Demand

Ventura County water users consume more water than is locally available, which has resulted in an overdraft of groundwater resources and increasing dependence on imported water supplies. Countywide water demand is over 430,000 acre feet per year (AFY). Approximately 68 percent is used by agriculture, 22 percent is used by residential demands, and 10 percent is used by commercial and industrial activities. As a result of the recent droughts, County water users have generally become more water efficient. Countywide per capita water use has fluctuated between 58,680 gallons per year (.18 AFY) to 74,946 gallons per year (.23 AFY). Per capita water use includes residential, commercial, industrial, and government use divided by population.

Municipal and Industrial Uses:

Municipal and industrial (M&I) water use encompass residential, commercial, governmental and industrial water uses. M&I water use accounts for approximately 32 percent (136,800 AFY) of the countywide water demand. Groundwater provided slightly less than one-third of the water used for M&I uses Countywide. The remaining two-thirds was obtained primarily from imported supplies (State Water Project) and from surface water (primarily Lake Casitas). This ratio is expected to

continue to the year 2010 unless additional imported supplies become available. Groundwater demand for M&I uses is expected to increase more slowly than demand on surface and imported water uses.

Table 2-2 depicts municipal and industrial water use for the ten incorporated Cities plus the unincorporated County as of the year 2000.

Table 2-2

Ventura County Water Survey

Per Capita Water Use By City 2005

City	Population[4]	Persons Per Household[4]	M&I Water Use (Acre/feet)	Average per Capita Water Use (Acre/feet per year) M&I Only	Average gal/person/day
Camarillo[3]	64,034	2.652	18273.2	0.29	173.56
Fillmore[2]	15,180	3.606	2548.81 [2]	0.17	195.36
Moorpark[1,3]	35,801	3.535	8776.1	0.25	193.52
Unincorporated[6]	95,602	3.095	9513.61	0.20	249.90
Ojai[3]	8,156	2.515	1953.88	0.24	218.62
Oxnard[5,2]	189,990	3.898	28944.18	0.15	114.92
Port Hueneme[5,2]	22,388	2.885	4547.5	0.20	118.36
Santa Paula[2]	29,133	3.529	5045.9 [2]	0.17	128.36
Simi Valley[3]	122,708	3.074	29027.29	0.24	217.87
Thousand Oaks[3]	127,644	2.788	33960.8	0.27	275.10
Ventura[3]	106,710	2.590	17,930	0.17	149.46
Total or Average	817346	3.106	160521.27	0.21	185.00

1 AF = gal

Notes:

1 - Includes 300 meters outside city limits.
2 - Based on Reporting to UWCD.
3 - Based on reporting to State Dept of Water Resources.
4 - Information from California Dept of Finance City/County Population and Housing Estimates, 1/1/2006
5 - Assumed all deliveries are M&I
6 - M&I and per capita use were calculated from several representative water providers.

Per-Capita Water Use:
The amount of water used by or introduced into the system of an urban water supplier divided by the total residential population; normally expressed in gallons per-capita-per-day (gpcd).

Agricultural Water Uses: Currently, compared to residential, commercial and industrial water demands, countywide agricultural water demand appears to be more efficient, partly as a result of the efforts in the Fox Canyon Groundwater Management Agency, as a result of the Conditional Ag Waiver required and administered by the Regional Water Quality Control Board, and also as a result of increased energy costs. Future demand for agricultural water use is expected to decline by about 12 percent (35,000 AFY) by the year 2010. This projected decline is based on an expected reduction in agricultural acreage. However, if high-water-use crops such as strawberries, celery and the irrigation of turf, replace low-water-use crops, agricultural water demand may actually increase even with fewer acres being farmed.

Due to increased surface water diversions from the Pumping Trough Pipeline and Freeman Diversion projects, extractions for agriculture may have declined substantially. To the extent recycled water is developed for irrigation use and more farmers become familiar with and implement efficient water use practices, a decrease in groundwater use may occur. Use of groundwater may remain somewhat constant or increase if high water use crops are grown.

There are a variety of local programs addressing agricultural water use efficiency including those operated by the Natural Resources Conservation Service and the Resource Conservation District.

For more information about agricultural water use, see 1994 Ventura County Water Management Plan, pages 33-36.

2.1.11 Watershed Flooding Problems and Issues

Ventura River Watershed

The Ventura River Watershed has the highest annual rainfall and rainfall intensities of the rivers in the County. It is also characterized by steep slopes in the Watershed with a relatively high percentage of slope failure areas that can contribute sediment to the streams during runoff events. The high sediment loads decrease the ability of the Ventura River and its tributary streams to convey the storm flow within their normal channels, and lead to flooding damages in developed areas. The potential flooding problem is increased by the fact that the Ojai area development is built on ancient alluvial fans that have experienced periodic significant debris flows over time. Alluvial fans are characterized by braided stream systems that are not easily channelized into one stream, and thus have a tendency to form new channels during extreme storm events and debris flows.

The intense rainfall and steep slopes in the Watershed yield high peak flows with large erosive potential, as can be seen by tens of feet of scour observed in channels such as the San Antonio Creek. Because the rainfall events causing this scour to occur relatively infrequently, channels are dry most of the year and damaging floods have occurred relatively infrequently. This has led to encroachment of development into historic floodplain areas during periods between floods, and increases the potential for flood damages when storm events occur. Some homes along the lower San Antonio Creek are located very close to the stream in the 100-year floodplain. Homes located along smaller creeks such as Thacher, Canada Larga, and McNell are subjected to flooding damages during storm events as well. High flows have damaged creek pipeline crossings, leading to pipeline breaks and large volume sewage spills. Fossil fuel pipelines can also be threatened by the storm flow.

The Ventura River ultimately receives all of the runoff from its tributaries, and combined with imbalances in its sediment equilibrium due to Matilija Dam and other debris basins, has the potential to cause significant scour and bank erosion. Even banks that have been armored with bank protection can be damaged by floods, with levee breaches occurring and threatening adjacent homes and businesses. Neighborhoods built on bluffs adjacent to the river have seen their backyards disappear due to bend scour and meandering of the river during storm events. Near the outlet of the river, the Highway 101 river crossing does not have adequate capacity for extreme storms and is subject to flooding and closures at fairly low flow levels. An adjacent RV park is flooded at even smaller flow levels and requires evacuation on a frequent basis.

Santa Clara River Watershed

The Santa Clara River is the largest Watershed in the County and also has the lowest percentage of development. The main tributary to the River is the Sespe Creek, which can contribute almost half of the river's ultimate flow at the ocean during storm events. The sediment load coming out of the Sespe, Pole, Hopper, and Santa Paula Creeks is extremely high due to a high percent of slope failure areas in the Watershed and steep slopes, and it is common for channels to fill with sediment during storm events, reducing their conveyance capacity to almost nothing and causing breakouts and flooding damage. The breakouts then wash across the main roads in areas such as Highway 126, causing road closures and isolating communities from medical help during storm events. Breakouts of Hopper Creek have also threatened a water treatment plant located downstream. The Sespe Creek is also known to break out of its channel upstream of levees that have been built to reduce flooding upstream of the City of Fillmore, damaging the homes behind the levee.

The combined influence of sediment and water runoff from the tributary Watersheds have a significant impact on the Santa Clara River and lead to severe bank erosion along the river. Areas such as the Santa Paula Airport adjacent to the river are commonly threatened by storm flow and require significant resources to protect between storm events. Downstream areas of the river are also flooded by relatively low-storm flows; the access roads near the Highway 101 bridge crossing flood during storm events. Slopes are so low in the downstream portions of the Watershed that culvert outlets into the river are commonly equipped with flapgates to prevent high river flows from flooding adjacent agricultural land and developed areas. However, if high river flows close the flapgates, runoff from adjacent Watersheds cannot be drained, leading to localized flooding in the downstream areas of the river.

Calleguas Creek Watershed

The Calleguas Creek system has the highest percentage of development of the river systems in the County. Lined channels in the developed areas confluence with the generally unlined Calleguas Creek. Although annual rainfalls and rainfall intensities are generally lower than other areas of the County, the high degree of development has outpaced the drainage system upgrades, and channels are generally undersized to convey flows from significant storm events leading to potential flooding damages of adjacent development. Although slopes and slope failure areas are smaller than in other Watersheds, the channel capacity is also affected by the sediment inflows from the relatively frequent wildfires that can occur in the undeveloped areas of the Watershed during the dry season.

A number of detention and debris basins have been built on the tributaries to reduce peak flows and trap sediment during storms, but the basins increase the erosive power of the flows downstream from the dams when the sediment is removed. This, combined with continuous clear water discharges from several wastewater treatment plants along the creek, has led to significant scour in the upstream portions of the Arroyo Simi. Attempts to stabilize the streambed have led to the installation of numerous grade stabilizers, but the stabilizers have been undermined and damaged during storm events, leading to further erosion in the channel and potential damage to adjacent development. Also threatened are the bridge crossings for streets and railroads such as those located near the City of Moorpark with one railroad crossing destroyed during recent storms.

The sediment scoured from the stream in the upper portions of the creek is deposited in the downstream reaches in the relatively flat areas of the Oxnard Plain. The deposition reduces the conveyance capacity of the channels requiring construction of levees to channelize the flow. However, the deposition has occurred faster than the levee construction, so that flows overtop the levees during relatively low flows, causing breakouts in the Oxnard Plain and causing flooding damage to adjacent agricultural fields and increasing developed areas in the Watershed. Conejo Creek breaks out of its channel downstream of Highway 101 at flows as low as 5000 cfs, threatening a nearby wastewater treatment plant. Road closures are common due to Calleguas Creek flooding in the lower portions of the Creek near California State University at Channel Islands, isolating the university.

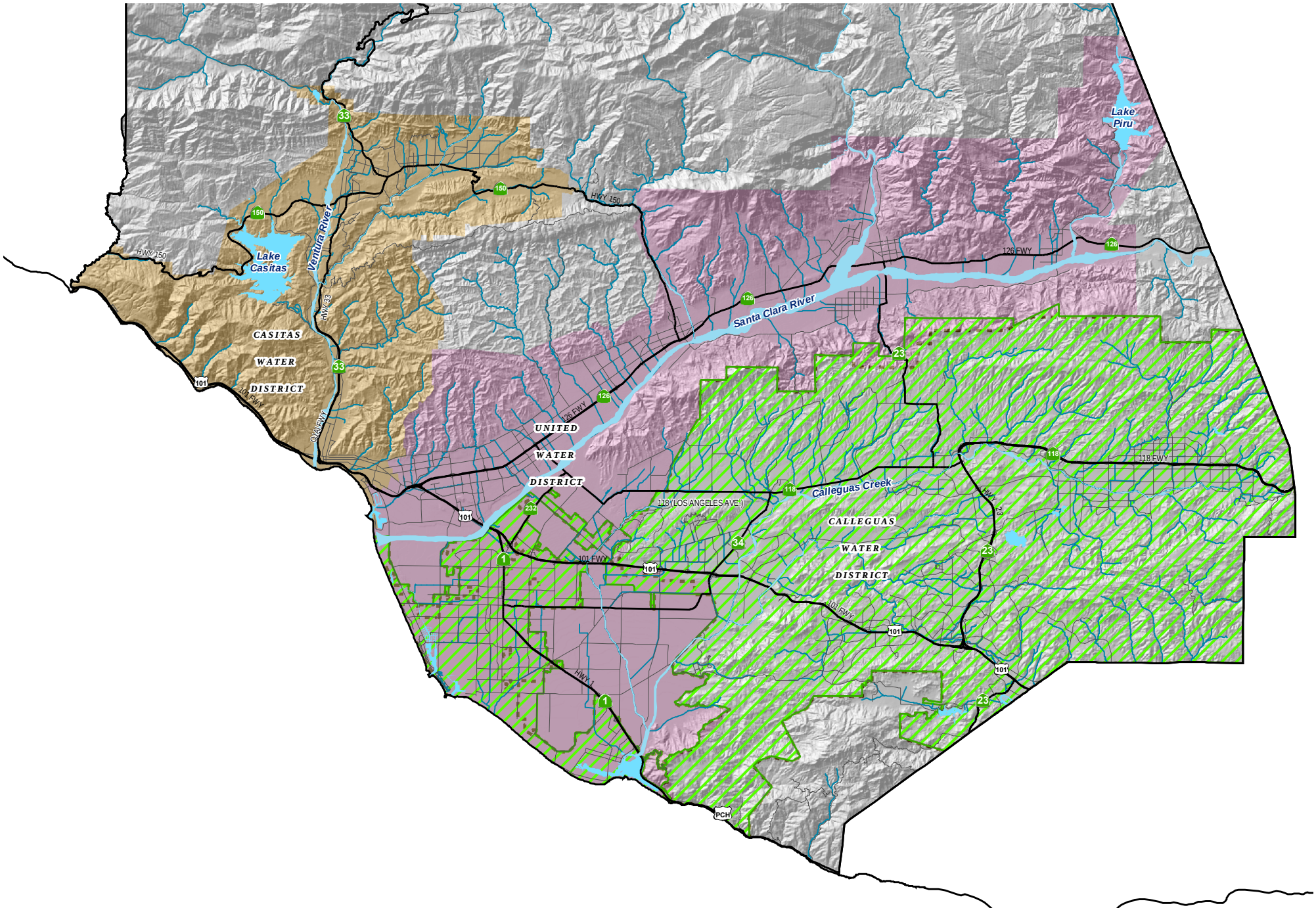
Malibu Creek Watershed

Although a significant portion of the Watershed is undeveloped, the steep terrain, incised canyons, and steep stream gradients contribute to large increases in flows during periods of significant precipitation. During periods of high rainfall, flooding is possible in Hidden Valley due to flows exceeding channel capacity. Portions of Medea Creek are also flood-prone, due to undersized culverts on Hollytree Drive and nearby streets. On Potrero Creek, the existing drop structures and bank slope protection are vulnerable to damage during high flow events.

2.1.12 Major Water Related Infrastructure

Wholesale Water Agencies

Ventura County has three major water districts which manage and supply water to the ten Cities, numerous retail water agencies, and to agricultural irrigators. These districts and their boundaries are illustrated on Map #4.



VENTURA COUNTY
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WATERSHEDS COALITION VENTURA COUNTY
INTERNAL BOUNDARIES WATER DISTRICTS
MAP 4

0 4 8 Miles

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Calleguas Municipal Water District provides imported State water for wholesale purposes to retail water purveyors serving municipal/industrial customers in the southeastern portion of the County. It serves an area of approximately 350 square miles, including the Cities of Camarillo, Moorpark, Oxnard, Port Hueneme, Simi Valley, and Thousand Oaks, and the unincorporated communities of Oak Park, Santa Rosa Valley, Bell Canyon, Lake Sherwood, Somis, Camarillo Estates, and Camarillo Heights. The population served is over 520,000. Annual water delivery is in excess of 130,000 acre feet.

Casitas Municipal Water District provides wholesale and retail water distribution from Lake Casitas and has the primary responsibility for delivery of surface water from Lake Casitas. The District manages Lake Casitas which has a storage capacity of 254,000 acre feet of water, serving approximately 65,000 people. Approximately 45 percent of the inflow to the Casitas reservoir comes from runoff in the 34-square-mile surrounding drainage area. The remaining 55 percent is diverted to Casitas from the 74-square-mile Ventura River-Matilija Creek Watershed through the Robles-Casitas Canal.

United Water Conservation District is responsible for groundwater recharge in the Ventura County portion of the Santa Clara River Valley and on the Oxnard Plain, and for the wholesale distribution of water to purveyors on the Oxnard Plain. UWCD operates Lake Piru, with 83,000 acre feet capacity, as a storage reservoir. Lake Piru water is released to the Santa Clara River for recharge of the Piru, Fillmore, and Santa Paula basins as it moves downstream. The Piru diversion on Piru Creek recharges upstream groundwater basins at recharge ponds in Piru. The Freeman Diversion in Saticoy conveys river water to spreading grounds where it recharges groundwater for subsequent use by municipal and agricultural pumpers. The Freeman diversion has an average yield of approximately 69,000 AFY, diverted from the river. Total groundwater pumping within United's service area is approximately 180,000 AFY.

Other Water Purveyors

In addition to the major wholesalers, there are numerous public and private water retailer districts which provide water to agricultural users and rural residents. Many of the Cities operate water treatment facilities. As of year-end 2002, there were 166 licensed water purveyors in Ventura County. This includes 7 City-owned and operated systems, 22 special water districts, 25 public water purveyors, 5 Public Utility Commission (PUC) regulated water companies, 63 mutual water companies and 59 other privately owned systems of varying sizes. The Ventura County Watershed Protection District recently completed a database entitled "Inventory of Public and Private Water Purveyors in Ventura County." This database is available in printed form and on compact disc. The database provides information on the location and contacts,; the wholesale water district area in which it lies; officers, governing board; staff; website; wells; connections; and comments.

In addition to the 500 or so water wells owned or operated by the retail and wholesale water providers, it is estimated there are about 2500 additional individual well owners within the County who obtain their own water directly from groundwater sources. Of the groundwater pumped in Ventura County, less than one-third is delivered by an organized water system. Individual well owners do most of the groundwater pumping in Ventura County and it is mostly used for irrigation.

2.2 Watersheds

2.2.1 Calleguas Creek Watershed Description (Map 5)

The Calleguas Creek Watershed encompasses an area of approximately 343 square miles, predominantly in southeastern Ventura County. The Watershed includes Conejo Creek, Arroyo Santa Rosa, Arroyo Simi, Arroyo Las Posas, and Calleguas Creek, as well as Revolon Slough and Mugu Lagoon. The northern boundary is formed by the Santa Susana Mountains, South Mountain, and Oak Ridge Mountains. The southern boundary is distinguished by the Simi Hills and Santa Monica Mountains. Presently 50 percent of the Watershed is undeveloped open space, 25 percent is agricultural, and the remaining 25 percent is in urban land use. The Watershed ultimately drains to the Pacific Ocean through Mugu Lagoon.

Prior to the 1940s, Calleguas Creek and its main tributaries provided drainage for stormwater and irrigation discharge with rare occurrences of year-round flow. However, over the past 50 years, steadily increasing wastewater discharges and urban runoff now provide portions of Calleguas Creek and its tributaries with constant flow.

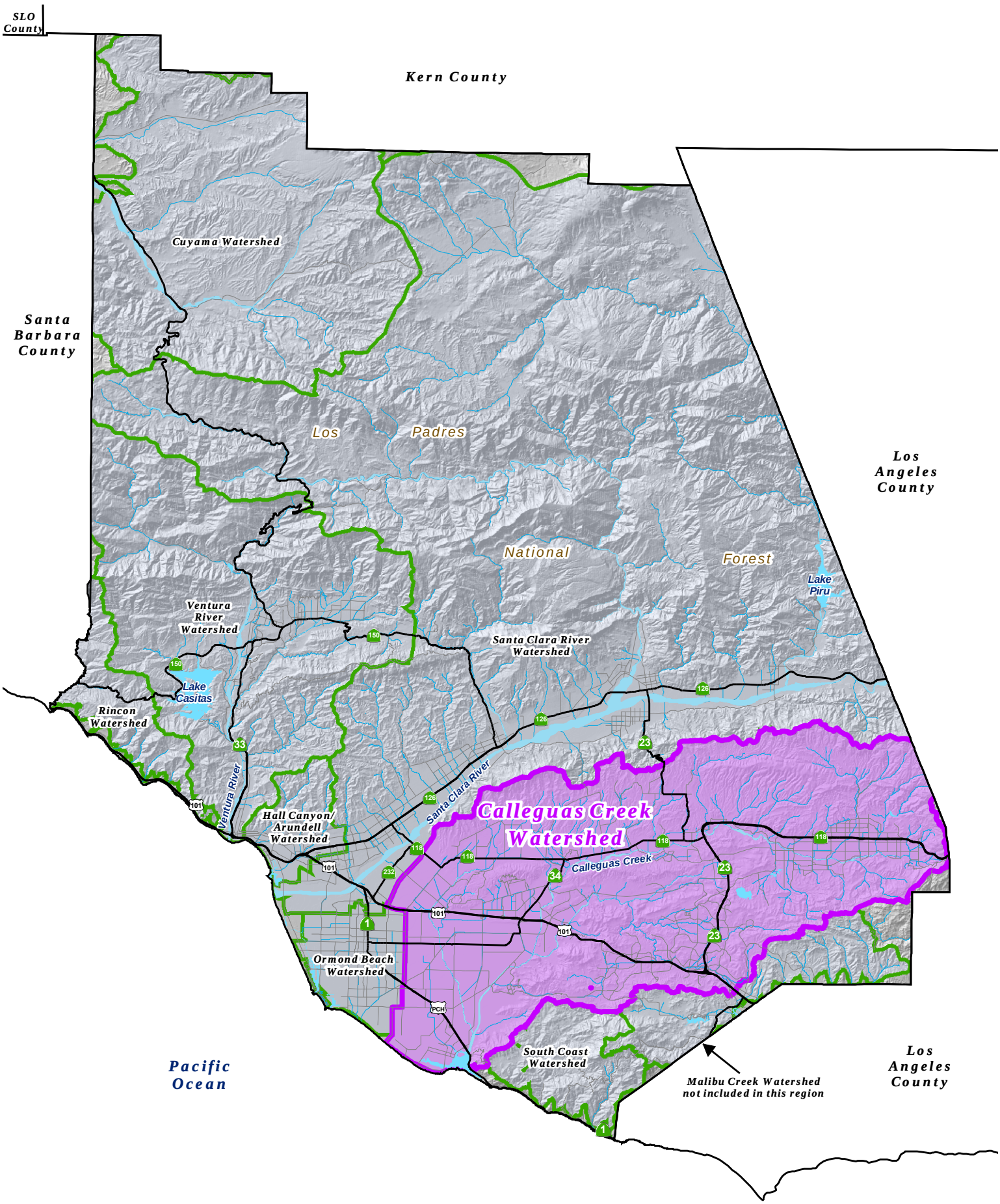
Urban development and agricultural activities within the Watershed have resulted in the degradation of water resources, loss of sensitive ecosystems, floods, and erosion and sedimentation problems. In 1996, a broad coalition of local property owners, water and wastewater agencies, environmental groups, agricultural parties, governmental agencies, and other private interests joined together to openly develop a management plan for the Watershed. The Calleguas Creek Watershed Management Plan (CCWMP) was completed in July 2004 to address the issues impacting the Watershed. The CCWMP recommended 20 action items in the areas of water resources and water quality, habitat and recreation, flood protection and sediment management, agricultural, land use, and public outreach and education.

Issues and Needs in the Watershed

The following were identified as significant issues for the Calleguas Creek Watershed.

Critical Needs

- Water quality
- Water supply
- Water reliability
- Flood control
- Habitat



VENTURA COUNTY
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WATERSHEDS COALITION OF VENTURA COUNTY
CALLEGUAS CREEK WATERSHED
MAP 5

0 4 8 Miles

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Water Quality
- Surface: TMDL – Metals, Salts, Toxicity, Bacteria, Sediment, Pesticides
- Groundwater: Salts, Iron, Manganese

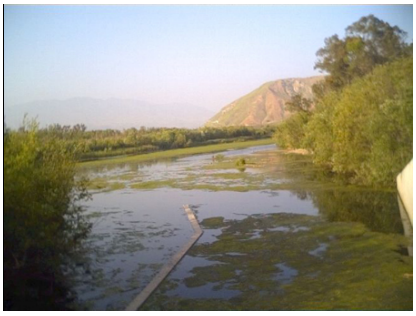
Water Supply
- Better groundwater quality would help reduce the amount of imported water, lessen dependence on outside water and increase groundwater reliability
- Utilization of recycled water
- Public education towards utilization of recycled water
- Development of local supplies
- Development of a drought-proofing plan
- Public education for conservation

Water Reliability – See also Water Supply List
- A need for self- sufficiency

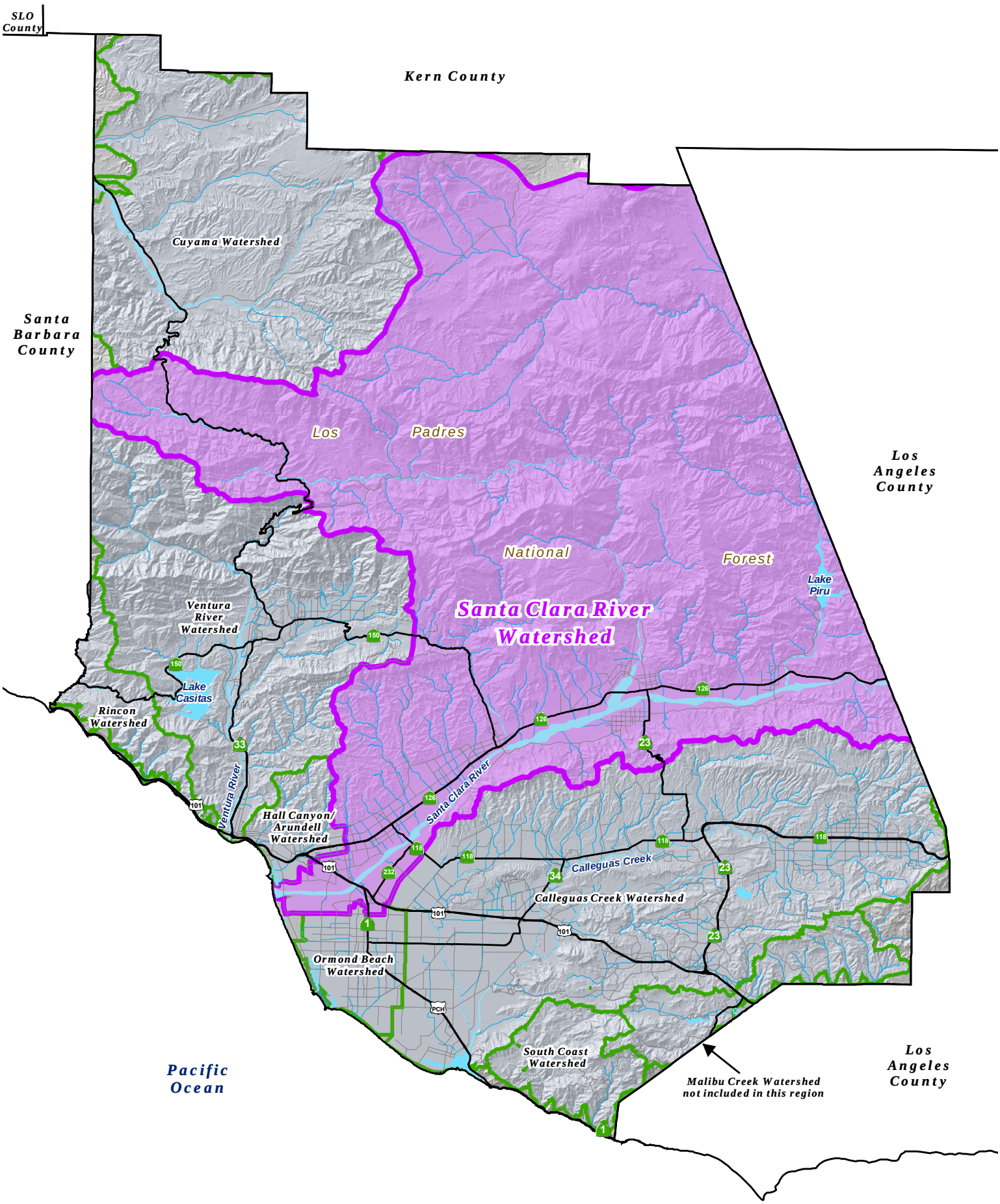
Flood Control
- Building in floodplains
- Planning and land development
- Erosion control to reduce sediment
- Channel capacity – levee construction

Habitat
- Mugu Lagoon – sediment quality and quantity
- Wetlands areas within the Watershed

2.2.2 Santa Clara River Watershed Description (Map 6 and 6a)

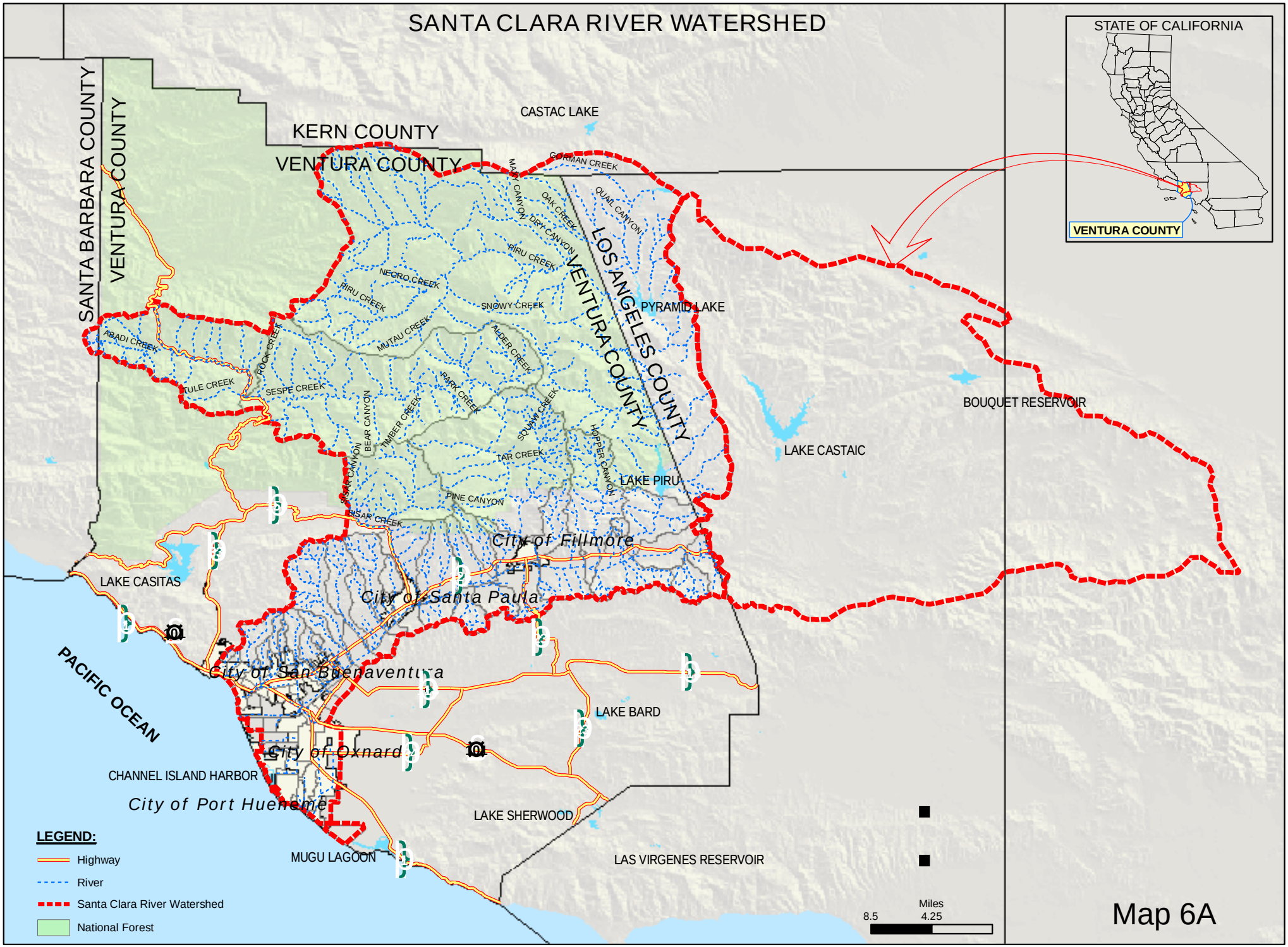


The Santa Clara River is the largest river system in Southern California remaining in a relatively natural state. The Santa Clara River headwater is at Pacifico Mountain in the San Gabriel Mountains. It flows in a generally western direction for approximately 84 miles through Tie Canyon, Aliso Canyon, Soledad Canyon, the Santa Clarita Valley, the Santa Clara River Valley, and the Oxnard Plain before discharging to the Pacific Ocean near the Ventura Harbor. The Santa Clara River and tributary system has a Watershed area of about 1634 square miles. Major tributaries include Castaic Creek and San Francisquito Creek in Los Angeles County, and the Sespe, Piru, and



VENTURA COUNTY
RESOURCE MANAGEMENT AGENCY
MAPPING SERVICES - GIS

WATERSHEDS COALITION OF VENTURA COUNTY SANTA CLARA RIVER WATERSHED MAP



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Santa Paula Creeks in Ventura County. Approximately 40 percent of the Watershed is located in Los Angeles County and 60 percent is in Ventura County. Please see Map 6a for a map of the entire Santa Clara River Watershed.

About 90 percent of the Watershed is to the east and north of the floodplain in the mountainous terrain of the San Gabriel Mountains, the Sierra Pelona, and the Topatopa Mountains of the Sespe back-country to headwaters near Pine Mountain and Mt. Pinos, and to the south of the river including the Santa Susana Mountains, Oak Ridge, and South Mountain. Much of this area is in the Angeles National Forest and Los Padres National Forest. The remaining 10 percent of the Watershed is largely the relatively flat terrain of the Oxnard Plain, the Santa Clarita Valley, Castaic Valley, the Santa Clara River Valley, and the floors of the larger canyons, including the upper Soledad, and lower Sand, Mint, Bouquet, Placerita, San Francisquito, Piru, Santa Paula, and the Sespe.

Historic records indicate that the climatic and basin characteristics of the Santa Clara River Watershed generally produce an intermittent flow regime in the mainstem; however, flows can increase rapidly in response to high intensity rainfall with the potential for severe flooding. At certain times of the year, the river may have continuous surface flow to the Pacific Ocean from natural watershed discharge. Controlled releases of water from Lake Piru supplement surface flows in the river reach in Ventura County. Incidental flows are supplied from water reclamation plant discharges and imported water runoff in the middle reach from the Santa Clarita vicinity to the Los Angeles County and Ventura County line. It is important to note that the current and future amounts of effluent discharges from these facilities can fluctuate due to several factors including seasonal variations, changes in treatment requirements, population growth, and effluent reuse. These flows are not considered a component of the natural base flows for the river; however, they do constitute a component of the comprehensive hydrological regime (i.e., surface and recharge waters) and are included for planning purposes.

Issues and Needs In the Watershed

Agencies and districts with projects within the Ventura County portion of the Santa Clara Watershed provided information on the key issues of concern with respect to water supply, water quality and environmental/habitat concerns. Following is the list of those issues organized within these three general categories.

Water Supply

- Groundwater and imported water supply
- Water distribution system reliability – interconnection
- Water conservation
- Water recycling – education of end users
- Enhancement of local supply – improved reliability
- Lack of public education on all of the above

Water Quality

- Seawater intrusion
- Septic system pollution – TMDL for nitrogen and chloride or salt loading
- Waste water treatment plant – nitrogen and chloride

- Agricultural runoff – TMDL
- Agricultural and urban erosion – sediment loading/hydrology model
- Stormwater/urban runoff – quality and management
- Basin plan objectives
- RWQCB fines/penalties
- Permit compliance

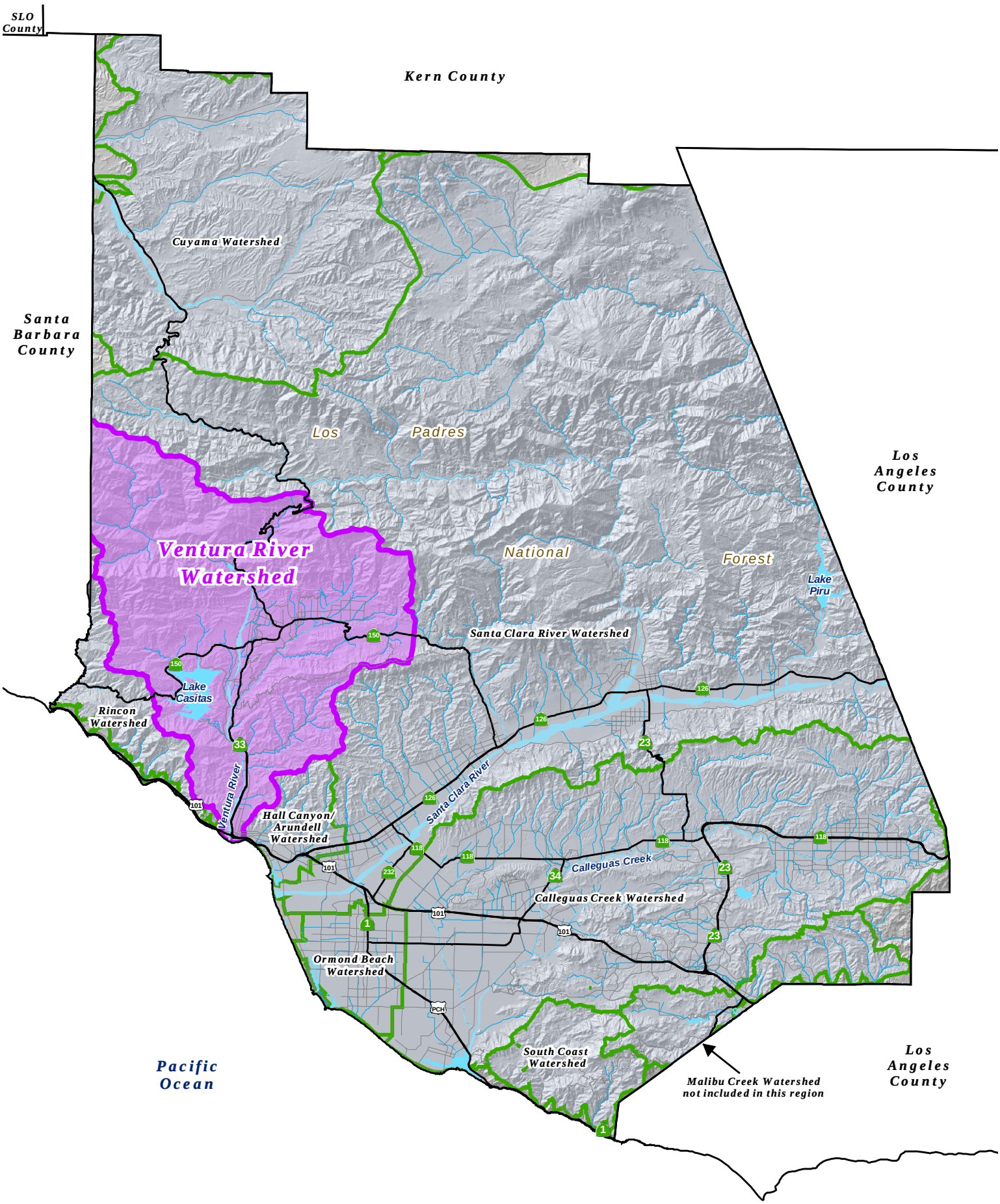
Environment/Habitat

- Floodplain development and land use planning
  - Steep slopes and sensitive areas
  - Hydrology – peak flow
  - Structures and damage
  - Habitat loss
- Infrastructure
- Habitat restoration
  - Endangered species and fish
  - Invasive species
- Disadvantaged communities

2.2.3 Ventura River Watershed Description (Map 7)

The Ventura River Watershed is a coastal Watershed located in the northwestern portion of Ventura County draining an area of 228 square miles roughly half of which is on Forest Service land (USFS, 1997). The Ventura River has several major tributaries including Matilija, North Fork Matilija, San Antonio and Canada Larga. Lake Casitas serves as the primary water supply for the area within the Watershed. The Rincon and Hall/Arundell Watersheds are generally, and for the purposes of this Plan, grouped together with the Ventura River Watershed.

From the upper slopes of the Transverse Ranges, the surface water system in the Ventura River Watershed generally flows in a southerly direction to an estuary located at the mouth of the Ventura River. Groundwater basins composed of alluvial aquifers deposited along the surface water system, are highly interconnected with the surface water system and are quickly recharged or depleted according to surface flow conditions. Topography in the Watershed is rugged, and as a result the surface waters that drain the Watershed have very steep gradients ranging from 40 feet per mile at the mouth to 150 feet per mile at the headwaters.



WATERSHEDS COALITION OF VENTURA COUNTY
VENTURA RIVER WATERSHED
MAP 7

VENTURA COUNTY
RESOURCE MANAGEMENT AGENCY
MAPPING SERVICES - GIS

0 4 8 Miles

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Precipitation varies widely in the Watershed. Most occurs as rainfall during just a few storms between November and March. Summer and fall months are typically dry. Although snow occurs at higher elevations, melting snowpack does not sustain significant runoff in warmer months. The erratic weather pattern, coupled with the steep gradients throughout most of the Watershed, result in high flow velocities with most runoff reaching the ocean.

The Watershed is minimally developed and compared to other Watersheds of the Los Angeles Region has large areas of good water quality and excellent aquatic habitat. About 30 miles of the upper main Fork Matilija and its tributaries are designated as Wild and Scenic Rivers (USFS, 1997).

While much of the water quality is considered good, the Watershed has been degraded, particularly in the lower areas by both nonpoint and point sources. Beach closures due to bacterial pollution are common. The major point source is the Ojai Valley Wastewater Treatment Plant which was recently upgraded, and septic systems in the Ojai Valley Nonpoint sources include urban runoff, road building, agriculture and grazing (including confined animal facilities), air deposition, and recreation. Water quantity is an important issue in this Watershed. Groundwater is used for domestic and irrigation purposes and the alluvial basins must be carefully managed and recharged. Groundwater basins generally are aligned with the surface flows and are made up of alluvial material that is quickly recharged and depleted and is highly interconnected with surface flows. The southern California steelhead and other fisheries are restricted or diminished by diversions and dams that have cut off important spawning areas by diminished flow in the main stem of the river and by poor water quality.

Issues and Needs in the Watershed

Agencies and districts with projects within the Ventura River Watershed provided information on the key issues of concern with respect to water supply, water quality, and environmental/habitat concerns. Following is the list of those issues organized within four general categories.

Water Supply Management Optimization

- Water quantity
- Water distribution system reliability – interconnection
- Source protection- providing security and protection
- Additional water supplies and/or increased efficiency

Habitat Restoration

- Steelhead recovery
- Arundo removal

Water Quality

- Pollution prevention
- Stormwater/urban runoff – quality and management
- Septic system pollution

Flood Control

- Channel maintenance
- Watershed assessment of flooding

SECTION 3.0 STAKEHOLDER REVIEW PROCESS

There is a history of coordination and cooperation among water users, water providers, State and Federal regulatory agencies, environmental agencies, organizations and public interest groups throughout Ventura County. There is currently extensive stakeholder involvement in the process of developing this Integrated Regional Water Management Plan (IRWMP), and the development of applications for Proposition 50, Chapter 8 funding, primarily through the Watersheds Coalition of Ventura County (WCVC). The Association of Water Agencies of Ventura County (AWA) has helped coordinate widespread involvement of local agencies in water management, and was involved in the development of the Interim and Final IRWM Plans. The Association of Water Agencies has over 150 members representing water districts large and small, consultants, suppliers and large water users.

As noted in the above sections, the WCVC was formed in 2006 and has been working actively to coordinate water management planning in Ventura County. Some members of the WCVC are also actively involved in the AWA.

3.1 Watersheds Coalition of Ventura County

This IRWM Plan was prepared through a collaborative process involving many agencies and organizations with a vested interest in improving water supply, water quality, flood management, and ecosystems within Ventura County. Participating agencies and organizations are listed below. These stakeholders represent all the agencies that participated in development of either the Calleguas Creek Watershed IRWM Plan and the Calleguas Creek Watershed Management Plan (CCWMP) or the Ventura Countywide IRWM Plan, which have more recently participated in development of this consolidated IRWM Plan. The formation of the Watersheds Coalition of Ventura County has strengthened the ability of the Region to address common needs and challenges.

The following provides a list of all participating agencies and organizations:

General Purpose Agencies

- City of Camarillo
- City of Fillmore
- City of Moorpark
- City of Ojai
- City of Oxnard
- City of Santa Paula
- City of Port Hueneme
- City of Simi Valley
- City of Thousand Oaks
- City of Ventura
- Ventura County Executive Office
- Ventura County General Services Agency
- Ventura County Resource Management Agency

Water Suppliers/Wastewater Management/Special Districts

- Calleguas Municipal Water District
- Camarillo Sanitary District
- Camrosa Water District
- Casitas Municipal Water District
- Fillmore Irrigation Company
- Fox Canyon Groundwater Management Agency
- Golden State Water Company
- Ojai Basin Groundwater Management Agency
- Ojai Valley Sanitary District
- Ojai Valley Water Conservation District
- Pleasant Valley County Water District
- Saticoy Sanitary District
- Triunfo Sanitation District
- United Water Conservation District
- Ventura County Watershed Protection District
- Ventura County Waterworks Districts
- Ventura Regional Sanitation District
- Zone Mutual Water Company

Business Organizations

- Business Industry Association
- Farm Bureau of Ventura County
- Ventura County Economic Development Association

Recreational and Open Space Entities

- California Department of Parks and Recreation
- Conejo Recreation and Parks District
- Pleasant Valley Recreation and Park District
- Rancho Simi Recreation and Park District
- Santa Monica Mountains Recreation and Conservation Authority

Regulatory and Resource Agencies – State and Federal

- California Coastal Commission
- California Coastal Conservancy
- California Department of Fish and Game
- California Department of Transportation
- California Department of Water Resources
- Los Angeles Regional Water Quality Control Board
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Forest Service – Los Padres National Forest
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

Other Stakeholders/Non Profit Organizations

- Association of Water Agencies of Ventura County

- California Native Plant Society
- California Wildlife Conservation Board
- County of Los Angeles, Public Works Department
- David Magney and Associates
- Environmental Defense Center
- Friends of the Santa Clara River
- Hansen Trust – University of California Cooperative Extension
- Kennedy Jenks Consultants
- Matilija Coalition
- The Nature Conservancy
- Naval Base Ventura County
- Santa Monica Mountains Conservancy
- Surfrider Foundation
- Trust for Public Land
- Ventura County Resource Conservation District
- Ventura Hillsides Conservancy
- Wetlands Recovery Project

Under the auspices of the Watersheds Coalition of Ventura County, two new watershed committees have been formed for the Santa Clara and Ventura River Watersheds. These committees began meeting in May/June of 2006 and have each met a number of times to refine objectives for their respective Watersheds and to develop project concepts for future implementation. The Calleguas Creek Steering Committee was formed in 1996 (see further information below) and continues its management efforts in the Calleguas Creek Watershed.

In addition to the watershed committees, a subcommittee was formed under WCVC to review water management strategies and evaluate the effectiveness of certain types of projects and programs in addressing these strategies.

3.2 Calleguas Creek Watershed Management Plan Steering Committee

Started in 1996, the Calleguas Creek Watershed Management Plan (WMP or Plan) is a comprehensive, stakeholder-driven effort to develop a resources management and protection program and strategy for the 341-square mile Calleguas Creek Watershed in southeastern Ventura County. Watershed stakeholders initiated the WMP in response to a clear need to work cooperatively and responsibly to develop a comprehensive plan which would guarantee the long-term health of natural resources in the watershed. Led by a broadly representative Steering Committee, the WMP has completed its first phase, the development of action recommendations and technical tools to address coordinated environmental and resource management by public agencies and private sector participants. Phase II, which is currently underway, focuses on how responsible parties in the Watershed will act collectively to address significant water quality improvements and meet the mandatory standards of the Federal Clean Water Act and California Porter-Cologne Act.

Stakeholder committee and subcommittee meetings are held on a regular basis (roughly monthly or quarterly) to allow discussion of issues facing the Watershed, including those of the IRWMP. These meetings are open to the public and all other interested parties. Copies of the meeting minutes from these meetings are provided on the CCWMP website (http://www.calleguascreek.org/ccwmp).

Numerous efforts have been made through the CCWMP Public Outreach sub-committee to include and notify the public about all aspects of the CCWMP. Public outreach activities include

developing a brochure summarizing the CCWMP, creating a public website with access to project information, and conducting all subcommittee meetings with public attendance. Public outreach activities are discussed in more detail in Chapter 3 of the CCWMP.

In 2005 the CCWMP was revised to include and Addendum (Volume II) which provided the additional information required, to comply with the State standards for an IRWMP, under Proposition 50, Chapter 8. The Addendum addresses specific implementation projects designed to meet local and State water management goals and priorities. The revised CCWMP was adopted in July 2005 by the local stakeholders.

In addition to participating in the newly formed WCVC, the Calleguas Creek Steering Committee continues to meet to address issues specific to their planning process and to address the issues and priorities unique to the Calleguas Creek Watershed.

3.3 Santa Clara River Watershed Committee

In July 2006, a stakeholder group was formed to develop a long-term watershed management plan for areas along the lower Santa Clara River Watershed. The Santa Clara River Watershed Committee (SCRWC) was formed under the auspices of the Watersheds Coalition of Ventura County (WCVC). It is anticipated that these efforts will be coordinated more closely in the future with the upper Santa Clara River Watershed stakeholders.

The SCRWC has focused its efforts on developing objectives and future project concepts that will address water issues and problems in the Watershed. Attendance at these meetings has included more than 30 people representing State and Federal agencies (such as Fish and Wildlife Service, Army Corps of Engineers, Regional Water Quality Control Board) and local water agencies, Cities, the local Resource Conservation District, U.C. Cooperative Extension, the County Board of Supervisors and public interest and environmental groups (such as the Nature Conservancy, Friends of the Santa Clara River). Interested parties from Los Angeles County such as the City of Santa Clarita, Castaic Lake Water Agency, Newhall Land and Farming, County Sanitation Districts and Los Angeles County Public Works Agency are also participating in the SCRWC meetings. Currently, four conveners provide input into the SCRWC activities: Sue Hughes, Ventura County Executive Office; Bruce Hamamoto, County of Los Angeles Public Works Department; E.J. Remson, Nature Conservancy; and Dana Wisehart, United Water Conservation District.

3.4 Ventura River Watershed Council

The Ventura River Watershed Council formed in May of 2006 and has met every three to four weeks. Attendance at these meetings has included more than 20 people representing State and Federal agencies (such as Fish and Game, Army Corps of Engineers, Regional Water Quality Control Board) and local water agencies, Cities, the Resource Conservation District, the County Board of Supervisors and public interest and environmental groups (such as the Trust for Public Land, Matilija Coalition, Ventura Hillsides Conservancy). The focus of these meetings has been to develop objectives and priority projects and programs to pursue in order to address water-related issues within the Ventura River and smaller coastal watersheds. This Council formed under the auspices of the Wetlands Recovery Task Force and is the only stakeholder group in the Ventura River Watershed that is guiding development of the IRWMP.

3.5 Former Ventura Countywide Integrated Regional Water Management Planning Group

The regional entity responsible for the preparation of the Interim Ventura Countywide IRWM Plan, which was completed in July 2005, was the Ventura Countywide Integrated Regional Water Management Plan Group (Group). The VCIRWMP Group which was formed in 2002 to build on past efforts to address water issues on a regional level and to prepare for Proposition 50, Chapter 8 grant funding. In early 2004, a consensus of Group members recommended that staff from the Ventura County Executive Office (CEO) and the Resource Management Agency Planning Division should coordinate the preparation of the Ventura Countywide Integrated Regional Water Management Plan (VCIRWMP) and apply for Proposition 50, Chapter 8 grant funds.

In August and September 2004, the Ventura County Board of Supervisors approved County collaboration with the Group and a share of funding to develop the VCIRWMP. The Group included 41 local governmental agencies (Cities, water agencies, County agencies, local, State and Federal agricultural service agencies), non-governmental organizations (environmental organizations, homeowners groups and public interest groups), and consultants. Of the 41 member agencies, 17 contributed funds for the preparation of the Planning Grant application, the Implementation Grant application, and Plan preparation efforts, totaling $83,000.

The majority of the Group, 17 members, represented water and sanitation districts with direct retail supply and/or treatment responsibilities. In addition to the regular Group members, many other water supply and sanitation districts (through the Association of Water Agencies of Ventura County with over 170 members), were included on the distribution list for meetings and received regular information and notices regarding Group activities, including development of the Interim Plan.

Representatives from many other public agencies and public interest groups, such as the U.S. Bureau of Reclamation, the U. S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, the California Department of Fish and Game, the U.S. Forest Service – Los Padres National Forest, the Resource Conservation District and a number of local environmental groups (Friends of the Santa Clara and Ventura Rivers, Nature Conservancy, Ojai Land Conservancy, Wetlands Task Force, the Trust for Public Land and others), were on the e-mail list for Group meeting notification, and are now included in the Watersheds Coalition of Ventura County list. These organizations also have a stake in the outcome, or a direct role in implementation, of programs and projects associated with the WCVC IRWM Plan and are currently working with the Group and/or its individual members. They attend meetings as needed.

SECTION 4.0 PLAN OBJECTIVES AND PRIORITIES

This section addresses the objectives adopted by the Watersheds Coalition and the three watershed committees. These objectives were established as a means to assure that implementation of water management strategies are appropriately integrated and to provide guidance in the selection of projects for implementation throughout the Region.

4.1 Integrated Regional Water Management Plan Objectives

The following five objectives were adopted by Watersheds Coalition of Ventura County on May 11, 2006 and are the result of combining the objectives adopted for the Ventura Countywide Integrated Regional Water Management Interim Plan and the Calleguas Creek Watershed Management Adopted Plan. These objectives were developed during numerous meetings and discussions and are based on the water needs, problems and issues identified throughout Ventura County. These objectives overlap with the Statewide Preferences and Priorities, also included in this section.

Overall Goal of the Watersheds Coalition of Ventura County:

To develop a Countywide integrated regional water management plan which addresses all watersheds – large and small – in Ventura County and which is coordinated with adjacent regions/counties that share our watersheds.

Plan Objectives:

1. Reduce dependence on imported water and protect, conserve and augment water supplies

- Identify and evaluate the opportunities to increase and enhance the beneficial uses of local water supplies and implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include increased water use efficiency, wastewater recycling, land use policies, construction of facilities and other water management techniques.
- Improve water supply reliability.
- Better understand local watersheds by gathering more data and information regarding water supply (capacity, safe yield, flows) and water demand.
- Ensure secure water supplies by helping local water purveying districts address the impacts of future droughts and other water shortages.
- Document and update the efforts being made by local water districts, environmental interest groups and other agencies to improve the management of local water supplies and to identify ways to build on these efforts for greater future success.
- Protect current and future groundwater supplies through groundwater recharge projects and protection of recharge areas.
- Development of watershed management plans, where applicable, to enhance understanding of watershed characteristics and appropriate actions.

2. Protect and improve water quality

- Identify and evaluate the opportunities to improve water quality and to implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include water quality improvement, land use measures, construction of facilities and other water management techniques.
- Meet State and Federal water quality standards.
- Manage and remove salts in the watersheds and help establish and comply with TMDL requirements.

3. Protect people, property and the environment from adverse flooding impacts

- Document and update the efforts being made by local water districts, environmental interest groups and other agencies to prevent and/or mitigate flooding and identify ways to build on these efforts for greater future success.
- Develop and implement land use measures that will help mitigate the impacts of new development in floodplains.

4 Protect and restore habitat and ecosystems in watersheds

- Document and update the efforts being made by local water districts, environmental interest groups and other agencies to improve and restore habitats and to identify ways to build on these efforts for greater future success.
- Integrate and coordinate current and future efforts of a diverse number of agencies engaged in water management and ecosystem restoration through a joint process of setting goals, evaluating data and, developing future actions/projects.

5. Provide water-related recreational, public access and educational opportunities

- Enhance the public's knowledge and awareness of water issues and involve them in the integrated regional water management process.
- Identify opportunities to provide public access and recreation when implementing new projects and programs.

Watershed Specific Objectives

OBJECTIVES APPROVED FOR CALLEGUAS CREEK WATERSHED

- Reducing dependence on imported water
- Improving water supply reliability
- Managing and removing salts in the Watershed and complying with TMDL requirements

For further information regarding the objectives for the Calleguas Creek Watershed, please see the adopted Calleguas Creek Watershed Management Plan (June 2005).

OBJECTIVES APPROVED FOR LOWER SANTA CLARA RIVER WATERSHED

Overall Goal:

To develop objectives for the Watershed which protect local watershed resources for all users and the environment.

A. Reduce dependence on imported State Water, protect, conserve and augment water supplies and improve water supply reliability
   - Strive for safe, clean, reliable and sustainable water supplies
   - Better understand the Watershed by gathering more data and information regarding water supply (capacity, safe yield, flows) and water demand
   - Minimize energy use to produce and distribute water and collect/treat wastewater
   - Continue to pursue and implement water use efficiency programs
   - Continue to pursue and implement water recycling projects
   - Ensure secure and reliable water supplies by helping local water suppliers address the impacts of future droughts and other water shortages
   - Document and update the efforts being made by local water districts, environmental interest groups and other agencies to improve the management of local water supplies, and to identify ways to build on these efforts for greater future success
   - Protect current and future groundwater supplies through groundwater recharge projects and protection of recharge areas
   - Develop watershed management plans which enhance understanding of watershed characteristics and appropriate actions
   - Identify and evaluate the opportunities to increase and enhance the beneficial uses of local water supplies and implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include increased water use efficiency, wastewater recycling, land use controls, construction of facilities and other water management techniques.

B. Sustain, protect and restore ecosystem functions throughout the Watershed (includes upland areas down to estuaries/ocean)
   - Protect and restore viable ecosystems and enhance urban ecosystems
   - Protect pristine ecosystems from degradation; strive to keep natural systems or areas as natural as possible
   - Document and update the efforts being made by local water districts, environmental interest groups and other agencies to improve and restore ecosystems and habitats and to identify ways to build on these efforts for greater future success
   - Integrate and coordinate current and future efforts of a diverse number of agencies engaged in water management and ecosystem restoration through a joint process of setting goals, evaluating data, and developing future actions/projects
   - Restore wildlife and habitat connectivity across the Watershed through such means as land acquisition, land use measures, public/private partnerships, and public education
   - Identify and evaluate the opportunities for additional efforts to improve and protect ecosystems in the future

C. Protect and improve water quality throughout the Watershed

- Address coastal (ocean and estuarine) resources as part of the Watershed
- Meet State and Federal water quality standards
- Inform the public about the consequences of runoff contamination
- Manage and remove salts, excess nutrients and pollutants in the Watershed and comply with TMDL requirements
- Understand links between air quality and water quality
- Identify and evaluate the opportunities to improve water quality and to implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include increased water quality improvement, land use controls, public education, construction of facilities and other water management techniques.

D. Provide compatible watershed-related recreational, public access, and educational opportunities

- Combine education with recreation to enhance public understanding
- Consideration of appropriate public access as part of projects
- Educate public agencies and decision-makers
- Enhance the public's knowledge and awareness of water issues and involve them in the integrated regional water management process
- Identify opportunities to provide public access and recreation when implementing new projects and programs

E. Protect people, property and the environment from adverse flooding impacts (minimize damage from flooding)

- Integrate floodplain management with ecosystem and recreation objectives
- Recognize and allow natural river processes, including high flows, and plan accordingly
- Document and update the efforts being made by local water districts, environmental interest groups and other agencies to prevent and/or mitigate flooding and identify ways to build on these efforts for greater future success
- Develop and promote land use measures and other actions that will help mitigate and minimize the impacts of development in floodplain areas
- Identify and evaluate the opportunities to assure improved planning and implementation of multipurpose flood management programs that protect property; improved water quality, stormwater capture and percolation; and protect or improve wildlife habitat

OBJECTIVES APPROVED FOR VENTURA RIVER WATERSHED

A. Maintain independence from imported State Water, protect, conserve and augment water supplies for all beneficial uses in the Watershed.

- Strive for safe, clean, reliable and sustainable water supplies
- Identify and evaluate the opportunities to increase and enhance the beneficial uses of local water supplies, and implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include

increased water use efficiency, wastewater recycling, land use controls, construction of facilities and other water management techniques.
- Improve water supply reliability
- Better understand the Watershed by gathering more data and information regarding water supply (capacity, safe yield, flows) and water demand
- Ensure secure water supplies by helping local water suppliers address the impacts of future droughts and other water shortages
- Document and update the efforts being made by local water districts, environmental interest groups and other agencies to improve the management of local water supplies and to identify ways to build on these efforts for greater future success
- Protect current and future groundwater supplies through groundwater recharge projects and protection of recharge areas.
- Development of a watershed management plan, to enhance understanding of watershed characteristics and appropriate actions

B. Sustain, protect and restore ecosystem functions throughout the Watershed (includes upland areas down to estuaries).
- Protect and restore viable ecosystems
- Document and update the efforts being made by local water districts, environmental interest groups and other agencies to improve and restore ecosystems and habitats and to identify ways to build on these efforts for greater future success
- Integrate and coordinate current and future efforts of a diverse number of agencies engaged in water management and ecosystem restoration through a joint process of setting goals, evaluating data, and developing future actions/projects.
- Restore connectivity in habitats

C. Protect and improve water quality throughout the Watershed
- Address coastal (ocean and estuarine) resources as part of the Watershed
- Identify and evaluate the opportunities to improve water quality and to implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include increased water quality improvement, land use controls, construction of facilities, and other water management techniques.
- Meet State and Federal water quality standards
- Manage and remove salts, excess nutrients and pollutants in the Watershed and comply with TMDL requirements

D. Provide compatible watershed-related recreational, public access and educational opportunities
- Combine education with recreation to enhance public understanding
- Provide public access as part of new projects
- Enhance the public's knowledge and awareness of water issues and involve them in the integrated regional water management process
- Identify opportunities to provide public access and recreation when implementing new projects and programs

E. Protect people, property and the environment from adverse flooding impacts (minimize damage from flooding)
- Integrate floodplain management with ecosystem and recreation objectives
- Recognize and allow natural river processes, including high flows, and plan accordingly

- Document and update the efforts being made by local water districts, environmental interest groups and other agencies to prevent and/or mitigate flooding and identify ways to build on these efforts for greater future success
- Develop and implement land use policies that will help mitigate the impacts of new development in floodplain

4.2 Regional Priorities for Plan Implementation

Regionwide Priorities

The Watersheds Coalition of Ventura County (WCVC) and the watershed committees have established regional priorities to include in the Plan that will help guide selection of projects and programs for implementation. Through the recent efforts of a WCVC subcommittee, the following list of projects and programs were developed for regional implementation. These address both short-term and long-term priorities. Projects identified for implementation are described in Section 6 and include short-term and long-term priorities.

Regional Program Priorities
Coordination of hydrologic and hydrogeomorphic models among agencies
Coordination, monitoring, assessment, characterization, analysis and enforcement among agencies (e.g. GIS spatial database)
Public-private partnerships
Outreach and education efforts
Regional coordination of efficiency and other programs
Research applicability of new, innovative solutions
Update IRWMP
Watershed planning

The WCVC will continue to address concerns within the Region and provide a means to present and discuss proposed projects.

Watershed-Specific Priorities

The following priorities have been established for each watershed based on input from the watershed committees.

REGIONAL PRIORITIES FOR CALLEGUAS CREEK WATERSHED

The following is an excerpt from the Adopted Calleguas Creek Watershed Management Plan (CCWMP), Volume II, Addendum, June 2005.

The Calleguas Creek Steering Committee met in several workshop sessions to develop a list of issues that the CCWMP would address. As stated in the CCWMP, the identified issues serve as the foundation for the development of the CCWMP Action Recommendations and represent the Calleguas Creek Watershed's Regional Priorities.

Long-Term Regional Priorities

- Water supplies are limited, yet no local consensus exists on priorities for beneficial uses of the water supply.
- Potential conflicts exist among wetland conservation, planned urban activities, and public facilities.
- Potential species/habitat impacts are unquantifiable because adequate data do not exist.
- Upland habitat loss may result in species endangerment, thereby necessitating future regulations with potentially adverse economic consequences.

Short-Term Regional Priorities

- All water dischargers need to comply with State and Federal water quality standards, including regulations for point and non-point pollution sources.
- The Watershed contains an accumulation of toxic chemicals, and the control and mitigation of pollution in the Watershed needs to be effective.
- Erosion, land loss, and sedimentation have been accelerated by agriculture and urbanization.
- Environmental regulations and responses should be coordinated and streamlined, and Watershed management should take a holistic, rather than a piecemeal, approach.
- All stakeholders want to maintain and, if possible, enhance the quality of life in the Watershed.

REGIONAL PRIORITIES FOR SANTA CLARA RIVER WATERSHED

Priority Types of Projects and Programs For Implementation in the Santa Clara River Watershed – From Santa Clara River Watershed Committee Meeting on September 7, 2006

Not in Priority Order

General Projects/Programs:

- Develop watershed protection plan
- Create position for watershed coordinator
- Develop and maintain an inventory/assessment of information (biology, chemistry, hydrology, etc)
- Develop and maintain a database for the watershed

Water Supply Enhancement Projects:

- Implement coordinated water use efficiency program
- Implement recycled water projects
- Increase groundwater recharge
- Pursue importation of State Water entitlement
- Develop inter-tie projects that are mutually beneficial

Water Quality Improvement Projects:

- Salinity management (i.e. brine line)
- Remove septic systems

- Nutrient management projects (i.e. algae, agricultural discharge management)

Ecosystem Protection and Restoration Projects:
- Invasive species (plants and animals) control
- Remove fish passage barriers
- Pursue floodplain restoration projects
- Land protection/acquisition (i.e. for open space and habitat restoration)

Flood Management Projects:
- Remove hazards and facilities (such as sewer trunk lines) from the river
- Develop watershed-wide flood protection plan containing guiding principles, including investigation of alternatives to traditional flood management projects (i.e. projects providing more ecosystem benefits)
- Develop watercourse setback ordinance and/or policies

Recreation and Public Access
- Pursue development of Santa Clara River Parkway

REGIONAL PRIORITIES FOR VENTURA RIVER WATERSHED

Priority Types of Projects and Programs For Implementation in the Ventura River Watershed, From Ventura River Watershed Council Meeting on August 30, 2006.

General Projects/Programs:
- Develop watershed protection plan (see Proposition 50 Step 2 Implementation Grant application for Watersheds Coalition of Ventura County)
- Create position for watershed coordinator
- Develop and maintain an inventory/assessment of information (biology, chemistry, hydrology, etc)
- Develop and maintain a database for the watershed

Water Supply Enhancement Projects:
- Implement coordinated water use efficiency program

Water Quality Improvement Projects:
- Remove septic systems
- Nutrient management projects (i.e. algae)

Ecosystem Protection and Restoration Projects:
- Remove arundo
- Remove fish passage barriers
- Pursue ecosystem restoration projects
- Land protection/acquisition

Flood Management Projects:
- Remove hazards and facilities (such as sewer trunk lines) from the river

- Develop watershed-wide flood protection plan containing guiding principles, including investigation of alternatives to traditional flood management projects (i.e. projects providing more ecosystem benefits)
- Develop watercourse setback ordinance and/or policies

Recreation and Public Access

- Pursue development of Ventura River Parkway

Process for Updating Regional Priorities

The Watersheds Coalition of Ventura County and the watershed committees continue to meet to address concerns within the Region and each watershed and provide a means to present and discuss proposed projects for implementation on an-ongoing basis. Thus, the committees have an active role in the decision-making process for project implementation. In the first scheduled IRWMP update in 2007, proposed projects will be evaluated in terms of the effect to the Region and/or individual watersheds, and the implementation order will be redefined as needed to address the highest priority issues.

Project Selection and Relation to Regional Priorities

The short-term priority projects are those projects described in the Section 6 and included in the Step 2 Implementation Grant application for Proposition 50, Chapter 8 funding. The WCVC will periodically consider modifications as needed.

4.3 Statewide Priorities and Program Preferences

Statewide Priorities

The following Statewide Priorities will be considered in the evaluation of funding proposals under Proposition 50, Chapter 8.

- Reduce conflict between water users or resolve water rights disputes, including interregional water rights issues
- Implementation of TMDLs that are established or under development
- Implementation of Regional Water Quality Control Board (RWQCB) Watershed Management Initiative Chapters, plans, and policies
- Implementation of the SWRCB's Nonpoint Source (NPS) Pollution Plan
- Assist in meeting Delta Water Quality Objectives; Integrated Regional Water Management Grant Program Guidelines
- Implementation of recommendations of the floodplain management task force, desalination task force, recycling task force, or State species recovery plan
- Address environmental justice concerns
- Assist in achieving one or more goals of the CALFED Bay-Delta Program

Please see Table 6-3 in Section 6 for details regarding consistency of proposed projects with Statewide Priorities.

Program Preferences

The following program preferences are reflected in the evaluation criteria and will be taken into consideration during the review process. The State will give preference to proposals that, as applicable:

- Include integrated projects with multiple benefits
- Support and improve local and regional water supply reliability
- Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards
- Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance
- Include safe drinking water and water quality projects that serve disadvantaged communities
- Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside the service area of the Metropolitan Water District of Southern California; *and* 3) within one mile of established residential and commercial development

Projects proposed for implementation by the Watersheds Coalition of Ventura County are consistent with, and help meet, the Statewide Priorities listed above. The specific manner in which each project helps meet these priorities is contained in Attachment 13 to the Step 2 Implementation Grant application and in Section 6.

SECTION 5.0 WATER MANAGEMENT STRATEGIES USED TO MEET PLAN OBJECTIVES

5.1 Overview of This Section

Included in the State's IRWMP Guidelines (Appendix A, Plan Standards) are 20 water management strategies to be considered for implementation as part of an IRWM Plan. Of the 20 water management strategies, 11 of them are required to be addressed in a Plan (see below). Because all 20 water management strategies are currently being implemented within the Region and are consistent with the IRWM Plan objectives, the Watersheds Coalition of Ventura County (WCVC) determined that all of the strategies would be discussed in the Region's IRWM Plan.

Water Management Strategies

- Ecosystem restoration*
- Environmental and habitat protection and improvement*
- Water supply reliability*
- Flood management*
- Groundwater management*
- Recreation and public access*
- Stormwater capture and management*
- Water conservation*
- Water quality protection and improvement*
- Water recycling*
- Wetlands enhancement and creation*
- Conjunctive use
- Desalination
- Imported water
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Source: Table A, Appendix A, Integrated Regional Water Management Grant Program Guidelines
* Denotes water management strategies which are mandatory, as indicated in the Guidelines

In one way or another all of the water management strategies are included as part of local Urban Water Management Plans, watershed management/protection plans, facility master plans, capital improvement plans, habitat conservation plans, flood and stormwater management plans, water conservation plans, water quality improvement plans, groundwater management plans and other plans addressing water supply, water resources and related issues. These plans have been developed and implemented for a variety of reasons: based on local needs and priorities, grant funding availability, regulatory requirements, and/or conditions placed on project approval.

Many of the programs and projects currently being implemented in the Region are a direct result of past regional planning efforts. Local agencies have been working collaboratively to implement these strategies since the 1970s (see Section 1 for background on Section 208 Water Quality Management Planning efforts). Implementation of these strategies also achieves the objectives

identified by the WCVC in more recent efforts to address local water problems and enhance water management.

5.2 Water Management Strategies

Each of the 20 strategies outlined in the State Guidelines are described more fully below and include the following information: description, benefits of implementation, existing efforts (policies, projects, programs), constraints to implementation (if applicable), related documents and websites, recommended future projects or actions, integration with other strategies, and possible funding sources.

Δ In future updates to the IRWMP these strategy sections may be rearranged to group like strategies together, eliminate duplication of descriptive text and to better integrate the discussion. They are currently listed in alphabetical order.

5.2.1 Conjunctive Use (Management)

Description

Through the water management practice of "conjunctive use," surface-water and groundwater resources can be coordinated to maximize the utility of an area's collective water resources. Conjunctive use involves using surplus surface water when available (e.g., storm runoff, surplus surface water flows, or recycled water) to recharge groundwater basins containing adequate storage capacity. The surplus surface water may be used to replenish groundwater either by:

1) spreading water on permeable surface areas

2) simply substituting ground water production with surface water deliveries (i.e., in-lieu groundwater storage). The water is then stored in the aquifer so that it may be subsequently withdrawn in dry periods when surface supplies are scarce.

3) by directly injecting water into the groundwater basin through injection wells.

All three techniques are used in Ventura County. Considerations in assessing the feasibility of conjunctive use projects, and for improving existing projects, include:

- Method of getting the water into the subsurface (spreading or injection), pros and cons
- Local hydrogeology
- Source water quality and availability
- Receiving water quality
- Potential geochemical mixing and reactions
- Extraction water quality
- Beneficial uses of the aquifer
- Basin Plan water quality objectives
- Regional Water Quality Control Board criteria and process for evaluating the project, and
- Point of compliance for water quality objectives

Conjunctive use also can work on an inter-basin scale. Water can be transferred from areas with surplus surface water and either stored in another basin or delivered to another basin for use in lieu of groundwater pumping. When surface water is less plentiful, e groundwater can be pumped. This type of conjunctive use has also been implemented in Ventura County.

One form of conjunctive use is groundwater banking. In groundwater banking operations, surplus surface water is injected or recharged for storage in the aquifer, and then extracted at a later time when surface water supplies are limited. This form of conjunctive use has also been implemented in Ventura County.

Background and Existing Efforts – Local and Statewide

Ventura County has some of the most extensive use of conjunctive use facilities in the state. The construction of these facilities was prompted by seawater intrusion within coastal groundwater basins. Seawater intrusion was first detected on the Oxnard Plain in the vicinity of the Hueneme and Mugu submarine canyons in the early 1930s and became a serious concern in the 1950s. Lowered groundwater levels from overpumping, which reversed aquifer flow to onshore (instead of the historical offshore flow) and pulled seawater into the aquifer, formed a distinct pumping trough in the southern Oxnard Plain.

Conjunctive Use Through Surface Recharge

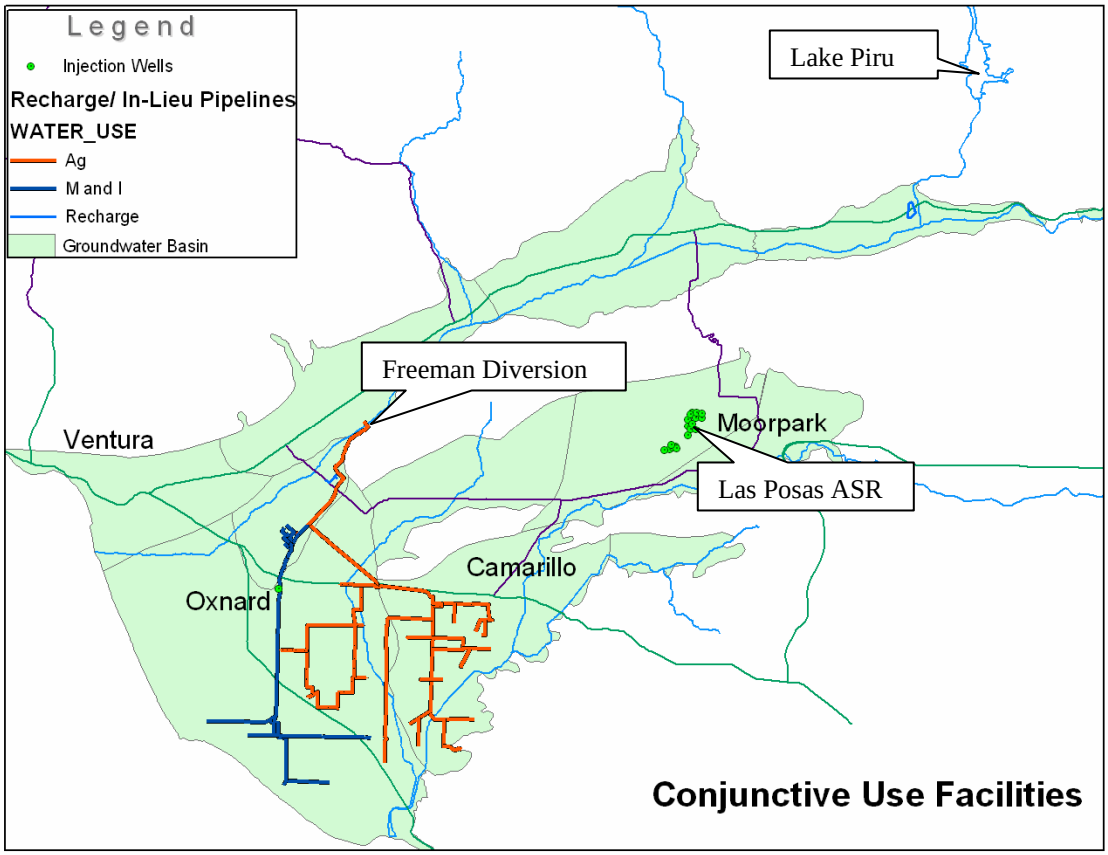
The first conjunctive use facilities in Ventura County were temporary diversion dikes constructed in the Santa Clara River; water diverted at these structure was routed to adjacent spreading ponds and percolated into the aquifer. Without these dikes, this diverted water would have otherwise flowed to the ocean along with other stormflow. The Freeman Diversion (1991), which replaced the temporary diversion dikes in the Santa Clara River with a permanent concrete structure, now allows for diversion of river storm flows throughout the winter rainy season. As a side benefit, the Freeman Diversion helped stabilize the riverbed after years of degradation caused by in-stream gravel mining.

The spreading ponds connected to the river diversion were expanded several times into the existing Saticoy, El Rio, and Noble spreading basins, which increased the ability of the Freeman Diversion to recharge groundwater. Currently, the Freeman Diversion helps recharge on average almost as much water as is pumped from the groundwater basins that it serves, helping reverse seawater intrusion in the upper of the two aquifers systems beneath the Oxnard Plain. An additional set of recharge basins is currently being developed from unused gravel basins by the City of Oxnard and United Water Conservation District.

Conjunctive Use Through In-Lieu Deliveries

In addition to surface recharge ponds, the Freeman Diversion also supplies river water to two pipeline systems that deliver this water to agricultural pumpers in lieu of their pumping groundwater. The Pleasant Valley Pipeline delivers this river water to Pleasant Valley County Water District for distribution to pumpers. The Pumping Trough Pipeline conveys diverted river water to agricultural pumpers on the Oxnard Plain, thus reducing the amount of groundwater extractions in areas susceptible to seawater intrusion. When river water is not available, United Water Conservation District uses five Lower Aquifer System wells to pump water into the pipeline.

In a different type of in-lieu delivery, United Water Conservation District also pumps and delivers groundwater to the cities of Oxnard and Port Hueneme and Naval Base Ventura County. This water is pumped from wells adjacent to the surface spreading ponds, where the aquifers are readily recharged. The cities and Naval Base Ventura County use this water in lieu of pumping their own wells closer to the coastline, where pumping could pull seawater into the aquifers.



A newer in-lieu system operated by Camrosa Water District diverts flows from Conejo Creek and delivers the water to Pleasant Valley County Water District to meet local irrigation demands within the overdrafted Pleasant Valley basin. The Conejo Creek Diversion Project diverts a combination of natural stream flow and recycled water released into the creek from wastewater treatment plants upstream.

Conjunctive Use Through Inter-Basin Transfers

The Conejo Creek project generates credits from the Fox Canyon Groundwater Management Agency by supplying in-lieu water to Pleasant Valley. These credits can then be recovered through the Supplemental M&I Water Program, a joint United Water Conservation District-Calleguas Municipal Water District project. The credits are pumped from the Oxnard Plain Forebay basin adjacent to the spreading ponds discussed above and the pumped water can be delivered through United Water Conservation District's potable pipeline to the cities of Oxnard, Port Hueneme and other customers. This project effectively shifts Lower Aquifer System pumping in the Pleasant Valley basin to Upper Aquifer System pumping in the Oxnard Plain Forebay basin. Through its pricing structure, this program also reimburses Calleguas Municipal Water District for their investments in the Conejo Creek project, a precedent that may allow similar types of projects in the future.

In another inter-basin transfer, the United Water Conservation District's Saticoy Wellfield was constructed adjacent to one of the Forebay spreading basins to pump shallow water from the recharge mound underlying the spreading grounds in wet years and deliver the water to users along

United's existing agricultural pipeline system (Pleasant Valley and Pumping Trough Pipelines) – which moves water from the easily-recharged Forebay basin to the overdrafted Oxnard Plain and Pleasant Valley basins.

Conjunctive Use Through Groundwater Banking

In East Ventura County, there is a conjunctive use project in operation where treated State Project water is stored. Centered in the Moorpark area in a deep 1000 foot confined aquifer within the Calleguas Creek Watershed, the Las Posas Aquifer Storage and Recovery (ASR) Project stores treated surplus water underground so that it will be available for later use. This project helps maximize water yield and ensure adequate emergency supplies.

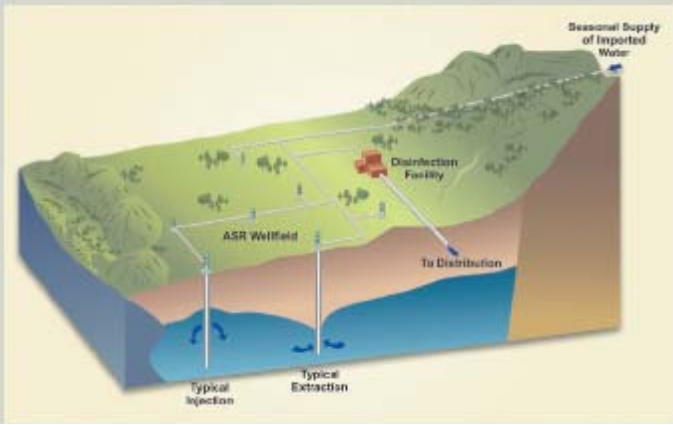
Calleguas Municipal Water District (Calleguas) is working in partnership with the Metropolitan Water District of Southern California (Metropolitan) on the Las Posas Basin ASR Project. Costs for the project have been shared, with staff from both agencies involved in planning, design, construction, and startup. Both Calleguas and Metropolitan benefit from the project. For Metropolitan, the project provides water that can be delivered to its member agencies during dry years, allowing Metropolitan to balance supplies and demands, provide reliability for emergencies and water quality events for 17 million Southern California residents. For Calleguas, the project provides a reliable source of water when imported supplies are limited due to scheduled maintenance shutdowns, drought, earthquake, or other emergency. Ventura County does not have access to a redundant treated water source of imported water, and receives all of its potable supplies from Metropolitan through a single treatment plant and tunnel. Lake Bard, which provided enough local storage for redundancy and emergency supply when it was built in the 1960s, is no longer adequate to meet current demands during periods when supply may be limited.

An Alternative to Open Reservoir Storage – This ASR project is an effective alternative to storage in an open surface water reservoir. Groundwater storage does not take up valuable land because the water is stored beneath the surface. Unlike reservoirs or lakes, no water is lost through evaporation. Another benefit of storing water in the aquifer is that it raises groundwater levels, requiring less energy to pump water out of the ground, not only for Calleguas but for nearby well owners. Underground storage also protects the water, making it less susceptible to water quality degradation. The Las Posas Groundwater Basin is ideally located for groundwater storage. The lower aquifers are primarily confined and protected from surface contamination by impervious clay layers. The Basin acts like an enormous natural bowl, 18 miles long and 4.5 miles wide that can store about 300,000 acre feet of imported water from Northern California. An acre-foot is enough

water to supply two families for a year. Calleguas will have the capacity to pump 70,000 acre feet per year during dry years or emergencies.

How Does the ASR Process Work? – ASR wells are ordinary groundwater extraction wells with a critical difference: additional pipes, valves, and controls allow operations personnel to reverse the normal flow and deliver water into, as well as out of, the ground. During wet years, when there is excess water available from Northern California, surplus water is injected into the aquifer and "banked" until needed. During drought years, when water supplies are scarce, the stored water is pumped out of the aquifer to meet water demands. The water injected into the wells is high quality drinking water. When this water is pumped out of the ground, it is treated one more time before being distributed.

The Las Posas Basin ASR project currently has 18 wells, each with the capacity to extract water at about 4 cubic feet per second (cfs) and to inject water at 3 cfs. The wells are 800 to 1200 feet deep and perforate the Fox Canyon Aquifer. The wells are equipped with 600- to 800-horsepower vertical turbine pumps. Operations personnel operate and control the pumps from a remote location using a Supervisory Control and Data Acquisition (SCADA) system.



Benefits of Implementation

The primary benefits of conjunctive use programs to Ventura County include: increased recharge to overdrafted basins and reversal of seawater intrusion, increased reliability of water supplies in droughts and in emergencies (e.g., earthquake cutting imported water supply pipeline), decreased reliability on imported water pumped from the Bay-Delta (which has its own environmental problems), and possible reduced pumping costs to agricultural and municipal users when groundwater levels rise as a result of enhanced recharge with surplus water when available. Conjunctive use is the primary tool to manage the county's groundwater basins and maintain water quality.

Constraints to Implementation

The primary constraints to implementation of conjunctive use programs are cost, cooperation among users, and environmental balancing. Cooperation among users is essential for larger programs that may move water between agencies and supply water to agricultural users who must

be willing to pay for and use in-lieu water. Good cooperation in the past has been a major asset in Ventura County, which has some of the best cooperative water management in the state. There is no expectation that this should change.

Environmental balancing of water needs has taken on a more important role in both Ventura County and the state. There are ongoing consultations with State and Federal agencies on providing adequate water for endangered fish (primarily southern California steelhead) on both the Santa Clara River and the Ventura River. Ventura County agencies are trying to find the optimal solution to river flows, dam releases, and diversions that maximize water supplies and recharge while ensuring adequate flows for fish. Similar issues have recently been resolved on releases of State Water down Piru Canyon to ensure recovery of endangered frogs. It is likely that these issues will be regularly re-visited and adjusted in the future.

Cost is a constraint on conjunctive use programs, particularly as the easier projects have already been implemented and the more expensive projects are the next to be designed and constructed. County taxpayers and groundwater pumpers have shared much of the cost of the current conjunctive use projects with Federal and State agencies (discussed under *Possible Funding Sources*). Surface recharge operations are paid by pumpers through per-acre-foot pump charges, whereas in-lieu, basin-transfer, and groundwater banking projects are paid for by the end user of the water. This strategy works as long as costs can be allocated across a wide user group. As future conjunctive use projects become more focused on solving problems in specific areas, cost subsidies will have to be considered because the cost of delivered water to a small number, of users or where sophisticated treatment is involved, will be too high to be borne exclusively by the users of the water.

Related Documents and Websites

Documents

The Fox Canyon Groundwater Management Agency (FCGMA) overlies the Oxnard Plain, Pleasant Valley, Las Posas Valley, and Santa Rosa Valley. Although the agency does not operate conjunctive use facilities (by statute), projects are discussed and approved through FCGMA processes. The FCGMA is currently updating its Groundwater Management Plan (submitted as part of this application) which covers the range of current and potential future conjunctive use strategies. This document is the best one-stop resource for current conjunctive use planning.

United Water Conservation District (United) builds and operates the surface water recharge facilities along the Santa Clara River and delivers water through the primary potable and irrigation in-lieu pipelines. United prepares annual reports on the different basins that are available from United and are on their website (see below). Calleguas Municipal Water District has also prepared documents related to its storage project, including engineering and technical reports (many on their website listed below). The City of Oxnard has completed planning and environmental review for its Groundwater Recovery Enhancement and Treatment (GREAT) Program, which includes a recycled water conjunctive use element, and has begun permitting work and final design of the first phase of recycled water treatment and distribution facilities.

Web Resources

- Fox Canyon Groundwater Management Agency. (http://publicworks.countyofventura.org/fcgma/) – Groundwater Management Plan includes extensive discussion of current and potential future conjunctive programs.

- United Water Conservation District (http://www.unitedwater.org/) – annual reports on groundwater conditions and conjunctive use operations.
- Calleguas Municipal Water District (http://www.calleguas.com/) – reports on Aquifer Storage Project.
- City of Oxnard (http://www.oxnardwater.org/projects/great/) – GREAT recycled water project documents.
- Camrosa Water District (http://www.camrosa.com/) – documents on Conejo Creek Diversion conjunctive use project.

Recommended Future Projects or Actions

The Fox Canyon Groundwater Management Agency Groundwater Management Plan referenced above has a prioritized list of future conjunctive use projects that have been discussed by stakeholders in the county. These include:

- Greater use of recycled water (e.g., GREAT project delivery of recycled water in-lieu deliveries and direct injection)
- Development of additional surface recharge facilities (e.g., Riverpark gravel pits turned to recharge basins)
- Importing additional water for recharge when SWP surplus is available or unused portions of Ventura County's State Water allocation can be purchased.
- Increase diversions and recharge of flood flows (e.g., increase diversion capacity of Freeman Diversion on Santa Clara River).
- Increase use of river diversions for conjunctive use (e.g., extend in-lieu delivery pipelines to new areas, treat river water for direct injection during the winter months when irrigation demand is low and in-lieu deliveries are limited).
- Developing intertie connections between water agencies to facilitate conjunctive use projects (eg. West Ventura County Water Supply Reliability Project and Casitas-Ventura Intertie)

Integration with Other Strategies

Conjunctive management of water supplies involves and benefits many of the water management strategies contained in this IRWMP. The primary positive impacts and links are found in the following strategies:

- *Groundwater Management*
- *Imported Water*
- *Water Recycling*
- *Water Supply Reliability*
- *Water Conservation*
- *Flood management*
- *Stormwater capture and management*
- *Water quality protection and improvement*
- *Desalination*
- *Surface storage*
- *Watershed planning*
- *Water and wastewater treatment*
- *Water transfers*

Possible Funding Sources

- Local funding (current projects are partially funded through joint funding from water districts' general funds, property taxes, groundwater pump charges, customers' rate base, and user fees)
- Current conjunctive use projects have been partially funded through a combination of Federal funds (Bureau of Reclamation, special legislation) and State funds (State Water Resources Control Board, Department of Water Resources Prop 13 grant).

5.2.2 Desalination

With Excerpts from the California Water Plan Update 2005

Description:

Desalination is a water treatment process for the removal of dissolved salts from water for beneficial use. Desalination is used on brackish (low-salinity) water as well as seawater. In California, the principal method for desalination is reverse osmosis. This process can be used to remove salt as well as specific contaminants in water such as trihalomethane precursors, volatile organic carbons, nitrates, and pathogens.

Current Desalination Issues and Projects in California

Desalination began in California in 1965. The last decade has seen a rapid rise in installed capacity. This is primarily due to dramatic improvements in membrane technology and the increasing cost of conventional water supply development. The 2005 California Water Plan (SB 1062) includes desalination as one of the State's water resource management strategies. Currently there are about 24 desalting plants operating in California that provide water for municipal purposes. The total capacity of these plants is approximately 79,000 acre feet per year. These include 16 groundwater, one surface water, and seven seawater desalination plants.

Currently there are six new groundwater desalting plants and one plant expansion in the design and construction phases for a total of about 29,500 acre feet per year in new capacity. There are no seawater desalting plants in the design and construction
phases at this time.

Recognizing the increasing use of desalting technologies and processes in California, during the 2002 session, the State Legislature enacted, and the Governor signed Assembly Bill 2717 (Hertzberg, Chapter 957, Statutes of 2002). AB 2717 directed the Department of Water Resources (DWR) to convene a Desalination Task Force (DTF) charged with evaluating the following:

- Potential opportunities for desalination of seawater and brackish water in California
- Impediments to using desalination technology
- What role, if any, the State should play in furthering the use of desalination

The DTF, comprised of members from 27 desalination stakeholders, completed its mission in October 2003 after six months of deliberations. Excerpts of some of the DTFs 18 recommendations, organized under three major broad categories, are summarized below:

General Recommendations:

- Desalination projects, where economically and environmentally appropriate, should be considered as an element of a balanced water supply portfolio, which also includes conservation and water recycling to the maximum extent practicable.

- The State should create mechanisms that allow the environmental benefits associated with transitioning dependence on existing water resources to desalinated water to be realized.

- Results from monitoring at desalination projects should be reported widely for the broadest public benefit; desalination operational data should be shared amongst agencies; and a statewide database and repository for storing and disseminating such information should be created.
- Create an Office of Desalination within the DWR to advance the State's role in desalination.

Energy and Environment Related Recommendations:

- Ensure seawater desalination projects are designed and operated to avoid, reduce, or minimize impingement, entrainment, brine discharge and other environmental impacts. Where feasible and appropriate, utilize wastewater outfalls for blending/discharging desalination brine/concentrate.
- Consider desalination projects as part of State and local conjunctive use strategies, and identify ways to improve water quality by mixing desalinated water with other water supplies.
- Recognizing the importance of power costs to the costs of desalination; consider energy supply strategies such as: applicability and access to non-retail power rates; and development of renewable energy systems in California, in conjunction with desalination implementation strategies.
- Identify creative ways that desalination can be used in a manner that enhances, or protects the environment, public access, public health, viewsheds, fish and wildlife habitat and recreation/tourism.

Planning and Permitting Related Recommendations:

- Encourage peer review processes for desalination projects coordinated amongst regulators, affected stakeholders and the public in order to improve communication, cooperation and consistency in permitting processes.
- Evaluate the efficacy of all new water supply strategies, including desalination projects, based upon adopted Community Plans, Urban Water Management Plans, Local Coastal Plans, and other approved plans that integrate regional planning, growth and water supply/demand projections.
- Environmental reviews of desalination projects should ensure that growth-related impacts of desalination projects are properly evaluated.

California Ocean Water Desalination Projects, Capacity and Costs

Recent technological advances in various desalination processes have significantly reduced the cost of desalinated water to levels that are comparable, and in some instances competitive, with other alternatives for acquiring new water supplies. Desalination technologies are becoming more efficient, less energy demanding and less expensive. Significant progress and innovation in membrane technologies such as reverse osmosis (RO) has helped reduce costs. The RO process has been proven to produce high-quality drinking water throughout the world for decades.

The following table shows the range in total unit water cost that can be expected from plants desalting groundwater (or brackish), wastewater, and seawater. These costs are based on the expected lifetime of the plant (20-30 years).

Desalting total water costs[1]	
Type of Desalting Plant	**Total Water Cost - $ per Acre Foot**
Groundwater	$250-500
Wastewater	$500-2000
Seawater	$800-2000
1Unit costs obtained from a variety of sources including agency reports, technical journals, and general periodicals, and are not based on a standard costing procedure.	

Currently, 7 of the 24 existing desalination plants in operation in the State involve the desalination of seawater. Water production from existing seawater desalination plants represents only 1150 out of the 79,000 acre feet total of the State's current desalination plant production capacity according to DWR.

As of June 2006, DWR reports that there were an additional 10 seawater desalination plants either in design and construction and/or planned within the state. Total additional water production capacity projected to be realized from those 10 seawater desalination plants is 187,350 acre feet.

Statewide, DWR projects a potential of 500,000 acre feet of additional annual water production coming from desalination projects by 2030. Of that statewide total, 40 percent, or 200,000 acre feet is projected to come from ocean water desalination, with the remaining 300,000 acre feet coming from brackish water desalination projects.

Total capital investment needed to attain this additional desalination water production capacity statewide is projected by DWR within the range of $1 to 2 billion. RO is generally thought to be the most cost-effective desalination process in California irrespective of the source water being desalted.

Currently, DWR estimates total amortized production costs for seawater RO desalination projects would range from $860 to $1300 per acre foot of water produced. By comparison, DWR estimates total amortized production costs for brackish water RO desalination projects would range from $130 to $1250 per acre foot of water produced.

RO desalination processes are particularly and highly sensitive to fluctuations in electricity costs, and the aforementioned DWR cost projections assumes electricity costs of $0.08 per kilowatt hour (kWh). On average, DWR projects that an increase in electric energy costs of $0.01 per kWh would increase the cost of membrane desalination processes by about $53 per acre foot of water produced from such processes.

In addition to desalination process production costs, DWR projects distribution costs ranging from $100 to $300 per acre foot, with the caveat that such costs are highly dependent on site-specific conditions. Also, on average, DWR projects that annual operations and maintenance costs for desalination projects may range from as little as 50 percent to as high as 70 percent of plant production costs.

Regarding potential future costs of seawater desalination processes in the State, DWR projects that given rapid advances in cost-effective membrane technologies and dramatic decreases in unit

production costs of membrane treatment units, total amortized production costs of seawater desalination projects in the State could drop to below $750 per acre foot within the next five years.

Benefits of Implementation

There are a number of benefits associated with implementation of brackish water or seawater desalination projects, including:

- Increase in water supply/new water supply
- Reclamation and beneficial use of waters of impaired quality
- Increased water supply reliability during drought periods
- Diversification of water supply sources
- Improved water quality
- Removal of salts from local watersheds through brine disposal
- Use of brines for salt-tolerant crops and wetlands habitat restoration
- Protection of public health
- Reducing groundwater overdraft
- Restoring use of polluted groundwater

Existing Efforts in Ventura County

Brackish Water Desalination

Brackish water, also referred to as low-salinity water, is water characterized with moderate levels of dissolved minerals and salts, typically less than 5000 ppm total dissolved solids (TDS). The presence of these impurities renders the water less desirable or unusable for many applications.

Salinity sources within the Calleguas Creek and Santa Clara River Watersheds include concentration from agricultural irrigation, salts in imported water, salts from seawater intrusion, and salt-loading by water consumers, both residential and industrial. These salts enter local surface water resources and build up in the soil and shallow aquifers impacting local and regional surface and groundwater resources. Discharge of treated wastewater and increasing use of recycled water also adds to the salt-loading within the Region. In addition to these sources, groundwater picks up dissolved minerals from long contact with underground mineral deposits.

To prevent impairment of beneficial uses of water, salts must be removed from degraded water sources and exported from the watershed. Brackish groundwater desalting is an effective means of treating impaired groundwater, providing a safe water supply and providing capacity for additional groundwater storage in areas with suitable hydrogeology

In 1991, as part of its Local Resource Program, Metropolitan Water District of Southern California (Metropolitan) established a Groundwater Recovery Program (GRP) to improve regional long-term water supply reliability through the recovery of otherwise unusable groundwater that was degraded by minerals and other contaminants. The GRP currently provides financial incentives of up to $250 per acre foot of water produced. Over 278,000 acre feet of new supplies have been delivered under this program, with salinity reduction a primary focus.

Brackish water desalination solves both reliability and quality goals in the region. By desalting ground and surface water, salinity is reduced in the watershed for the benefit of all users. At the same time those impaired water resources, once treated, augment local supplies and further insulate the Region from threats to imported water. There are a number of brackish desalination projects within the Calleguas Creek Watershed that are either in planning or under construction. Some of these projects are briefly discussed below.

The Calleguas Municipal Water District (Calleguas) Salinity Management Project is a 35-mile Brine Line that is integral to the construction of a series of brackish groundwater desalters in the Calleguas Creek Watershed. The Brine Line will also provide disposal of tertiary treated effluent for several wastewater treatment plants (Camrosa Water Reclamation Facility, Camarillo Water Reclamation Plant, Hill Canyon Wastewater Treatment Plant, Moorpark Wastewater Treatment Plant, Simi Valley Water Quality Control Plant) and brine disposal for numerous brackish groundwater desalters (Camarillo, Camrosa, University Well, Somis, Moorpark and Simi Valley, and potentially the Tapo Canyon Water Treatment Plant). In addition, the Brine Line serves as a regional conveyance facility that moves saline water from areas where it is a nuisance to areas where it can be an asset for salt tolerant crops and wetlands restoration. These projects cannot be implemented without the Salinity Management Project, as the Brine Line provides the sole mechanism for brine disposal in the Watershed. In May of 2006, Calleguas was awarded a Proposition 50 grant for its Metals Recovery from Brine research project which will help to identify treatment options for metals that may be coincident with brackish water, but may not be addressed through typical desalting processes.

In the Santa Clara River Watershed, the City of Oxnard's Groundwater Recovery Enhancement and Treatment (GREAT) Program includes the construction of a 15 mgd desalination facility. The City is currently constructing Phase 1 of the Blending Station No. 1 Desalter, which will produce 7.5 mgd, expandable to 15 mgd. The desalter will remove minerals from brackish groundwater produced by City wells, which will then be blended with either groundwater produced by City wells or groundwater purchased from United Water Conservation District (UWCD). The phase 1 facility should be completed in early 2008. The City is also considering the feasibility of a second desalter at its existing Blending Station No. 3 facility.

Ocean Water Desalination

Currently, there are no ocean water desalination projects underway in the County.

Ocean Water Desalination encompasses a variety of water treatment processes designed to efficaciously and cost effectively remove dissolved salts from seawater. Salinity concentrations in seawater are appreciably higher and chemically more variegated than salt concentrations in brackish water.

A variety of ocean water desalination processes currently exist, each with its own set of resource management, economic sustainability, and regulatory permitting challenges. The table below provides a general description of desalination processes available for use in California today.

Membrane Processes	Thermal or Distillation Processes	Alternative Processes (Not Yet Competitive)
Reverse Osmosis (RO)	Vapor Compression: ➢ Thermal (TVC) ➢ Mechanical (MVC)	**Freezing**
Electrodialysis (ED)	Multi-Stage Flash Distillation (MSF)	**Membrane Distillation**
Nanofiltration (NF)	Multi-Effect Distillation (MED)	**Air Humidification/ Dehumidification**
Microfiltration (MF)		

Constraints to Implementation (Brackish and Ocean Water Desalination)

Cost and Affordability – Historically, ocean water desalination costs have been perceived by water suppliers, elected decision-makers, and the public, as prohibitively expensive. However, dramatic improvements in membrane treatment technology, ongoing and accelerating reductions in the per-unit cost of membrane filters and rising cost of conventional water supplies have made brackish water desalination competitive with imported water and recycled municipal wastewater today.

Higher costs of desalting may, in some cases, be offset by the benefits of increased water supply diversity and reliability, water quality improvements, and/or the environmental benefits from substituting desalination for a water supply with higher environmental costs.

Environmental Impact and Permitting – In marked contrast to brackish water desalination plants, which have fairly routine environmental and permitting requirements, coastal ocean water desalination plants face much greater permitting hurdles and closer regulatory, stakeholder and public scrutiny. Based on their location within the coastal zone, ocean water desalination plants, with their need for water intakes and brine outfalls, face a myriad of resource management and regulatory challenges from permitting agencies.

Seawater Intakes – Existing seawater intakes associated with cooling power plants located in the coastal zone throughout the State are proposed as the source of ocean water supply for almost all of the currently proposed ocean water desalination plants. Generally speaking, existing seawater intake systems have been shown to have fairly significant impacts on the coastal zone. As a result, a number of coastal power plants that use once-through cooling water from the ocean may convert to a "dry" cooling system. Additionally, a number of coastal power generating plants are not in continuous operation, which may limit the potential capacity of ocean water desalting projects on the California coast.

Concentrate Discharge–.The discharge of seawater desalting brine is on the order of twice as salty as the ocean. Unless the discharge is extremely hot (another adverse impact), even the most diffused brine will drop to the bottom of the ocean and stay there. Relatively small changes in temperature and salinity (the two primary factors of seawater density) power the ocean currents. Discharge of brine from seawater osmosis is not sustainable. Discharge of brine from brackish water desalting, of which Ventura County has an abundance, is less salty than seawater. It will float on the ocean surface (like river water does) and gradually mix with wave action. The discharge of brine from brackish water osmosis is sustainable

Several ocean water desalination plants currently under consideration are proposed to be co-located next to existing coastal power generating plants in order utilize existing ocean outfall systems to take advantage of dilution and mixing prior to ocean discharge. The availability of power plant cooling system to dilute the concentrate prior to discharge to the ocean will also be affected by the future of coastal power plants in the state.

Energy Use – Ocean water desalination's primary operation cost results from the cost of electricity. According to the DWR, a 50 mgd seawater plant (which produces approximately 50,000 acre feet per year assuming operating 90 percent of the time) would require about 33 megawatts of power. The state-wide forecast for seawater desalination of about 187,000 acre feet per year would therefore require about 123 megawatts of new power.

The rising cost of electricity, is the most significant factor in the overall cost of desalination; however, technological improvements, the potential of renewable energy project development and co-location with coastal desalination plants will drive these costs lower over time. The reduction in unit energy use has been among the most dramatic improvements in recent years due to improvements in energy recovery systems.

Growth Inducing Impacts – In California, the availability of water has been a contentious and substantial limitation on development in a number of locations, primarily coastal communities. Since the unit cost of desalination treatment technologies for both brackish and ocean water desalination processes has decreased dramatically, and is projected to continue to decline , desalination projects may offer a more affordable new water supply option in comparison to the past. Accordingly, the increasingly affordability, reliability, diversification and quality benefits of desalination projects may be perceived by some as removing past constraints on coastal development.

Related Documents and Websites

Documents

Water Desalination Task Force (AB 2717 [Hertzberg, Chapter 957, Statutes of 2002])

"Water Desalination – Findings and Recommendations," Department of Water Resources, October 2003

Draft Desalination Issues Assessment Report, Center for Collaborative Policy, California State University, May 2003

"Seawater Desalination and California Coastal Act," California Coastal Commission, March 2004

"Seawater Desalination: Opportunities and Challenges", National Water Research Institute, March 2003

"Tapping the World's Largest Reservoir: Desalination", Western Water, January/February 2003

Web Resources

California Water Plan: http://www.waterplan.water.ca.gov/

California Department of Water Resources, Water Use Efficiency, Proposition 50 Chapter 6(a) Desalination Grants: Chapter 6(a):
http://www.owue.water.ca.gov/recycle/DesalPSP/DesalPSP.cfm
http://www.owue.water.ca.gov/recyclle/DesalPSP/Geographic_Dist2006.pdf.
U.S. Desalination Coalition: http://www.usdesal.org/

Recommended Future Projects or Actions

Future desalination efforts in the Region will focus on brackish water. Treatment and distribution of brackish water is more cost-effective and feasible than ocean water desalination at this time and provides water quality benefits in addition to increasing water supply.

Integration with Other Strategies

Desalination of brackish water or seawater can positively benefit the following other water management strategies contained in this IRWMP:

- Ecosystem restoration
- Environmental and habitat protection and improvement
- Water supply reliability
- Groundwater management
- Recreation and public access
- Stormwater capture and management
- Water quality protection and improvement
- Water recycling
- Wetlands enhancement and creation
- Conjunctive use
- Desalination
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Possible Funding Sources

- State and Federal Funding
- Grant Funding (Proposition 50 –Chapters 6* and 8)
- Metropolitan's Local Resource Program

*Chapter 6(a) authorized $50 million in grants for brackish water and ocean water desalting projects. In the 2005 funding cycle, grants totaling $25 million have been awarded for research and development studies, pilot and demonstration projects, full-scale plant construction, and feasibility investigations.

Proposition 50 Grants

DWR carried out the first round of funding under this grant program during FY 2004-05 by awarding $24.75 million to 24 different desalination projects. In September of 2006, DWR announced final funding awards under it second round of funding under this grant program. Three desalination projects submitted by Ventura County water suppliers were awarded funds by DWR under this second and final round of Proposition 50 grant funding, though none of them involved ocean water desalination. The following table depicts those three Proposition 50 grant funded desalination projects.

Agency	Project	Type	Total Cost	Funds Requested	Grant Award
City of Oxnard Water Division	GREAT Program Desalter Blending Station No.1	Construction Project	$20,000,000	$3,000,000	**$2,000,000**
City of Oxnard Water Division	Blending Station No. 3 Desalter	Feasibility Study	$374,000	$187,000	**$187,000**
City of Camarillo	Brackish Water Desalination Pilot Study	Pilot Project	$767,744	$383,872	**$383,872**

Metropolitan Seawater and Brackish Desalination Grants

In November 2001, Metropolitan issued a Request for Proposal (RFP) under its Seawater Desalination Program. The current objective is 150,000 acre feet per year of sustained production. Through a competitive process, selected projects will be eligible for financial assistance up to $250 per acre foot of water produced.

The objective of the grant program is to assist local public agencies with the development of new local potable water supplies through the construction of brackish water and ocean water desalination projects and help advance desalination technology and its use by means of feasibility studies, research and development, and pilot demonstration projects.

5.2.3 Ecosystem Protection and Restoration Strategies

(Includes the following three water management strategies: Ecosystem restoration, environmental and habitat protection and improvement, wetlands enhancement and creation)

"Ecosystems have incredible potential for natural recuperation. Nevertheless, every system has its limitations. Our species exists at a singular point in our evolution; we are aware of the impact our lifestyle has on the earth, yet we fail to accede that we possess the means to effect change. At this unique stage in our history, between feigned ignorance of environmental problems and gradual acceptance of their solutions, restoration ecology is poised to become a powerful tool for facilitating the Earth's innate recuperative mechanisms." E. O. Wilson, 1992.

Description

Ecosystem protection comprises a comprehensive approach and strategy to watershed management. In a hierarchy of actions, protection is first, while restoration, enhancement and finally creation actions follow to improve watershed health, quality and productivity.

Habitat protection and improvement, and wetland enhancement and creation are included as a subset of Ecosystem Protection. Habitat loss is the leading cause of both species extinctions (Wilson 1988) and ecosystem service decline (Daily et al. 1997). There are two ways to reverse this trend of habitat loss: conservation of currently viable habitat and restoration of degraded habitat.

Water-related ecosystem restoration can include:

- changing the flows in streams and rivers
- restoring fish and wildlife habitat
- controlling waste discharge into streams, rivers, lakes or reservoirs
- removing migration barriers in streams and rivers so salmon and steelhead can spawn, and
- permanent protection of groundwater recharge areas, wetlands, and estuaries.

The state's ecosystems, from mountain watersheds to coastal beaches, form California's natural infrastructure and support our population and economic growth. Ecosystem protection and restoration is an investment in improving the condition of California's natural infrastructure. Water management strategies that include protection and restoration of natural infrastructure provide long-term benefits to water supply reliability and water quality improvements along with benefits to endangered species and to water-related recreational activities.

Land development projects and water development projects have often had significant, primary and secondary environmental impacts. Today, project planning must include investment in ecosystem restoration to avoid ecosystem damage and reduce long-term maintenance costs. Water

management projects can help restore ecosystems because they can ensure flows in streams and rivers at flow rates and patterns to facilitate restoration actions.

The Issue

California Rivers, A Public Trust Report (State Lands Commission, 1993) concluded that California's rivers are in poor health and their viability as sustainable ecosystems is in peril. The report urged State agencies to undertake a comprehensive program to protect river basins, bays, estuaries, lakes and watersheds.

The condition of California's fisheries reveals the need for ecosystem improvement. Thirty-three fish populations are listed as threatened or endangered in California, with some in each of the hydrologic regions. Ventura County watersheds and coast are home to 29 threatened or endangered species including southern California steelhead, tidewater goby, arroyo toad, and California red legged frog; all are affected by modified stream flows. (http://www.fws.gov/ventura/es/spplists/species).

In addition, habitat fragmentation has become an increasing problem in remaining open space areas including streams and rivers. Habitat fragmentation is the emergence of discontinuities in a biological system. Through land use changes (e.g. development, agriculture) and "natural" disturbance, ecosystems are broken up into smaller parts. Small fragments of habitat can only support small populations and small populations are more vulnerable to extinction. Further, fragmenting ecosystems decreases interior habitat. Habitat along the edge of a fragment has a different range of environmental conditions and therefore supports different species than the interior. Fragmentation is devastating for those species which require interior habitat and may lead to the extinction of those species. Restorative projects can increase the effective size of a habitat by simply adding area or by planting habitat corridors that link two isolated fragments. Reversing the effects of fragmentation and increasing habitat connectivity are central goals of restoration ecology. California's coastal and foothill sage, a significant habitat in Ventura county, is considered to be one of thirty-four of the most critical biodiversity hot spots on land (a geographical area with large numbers of endangered species) and in most critical need of immediate attention (Conservation International, 2006).

Mitigation of environmental impacts has become common in California. Mitigation is similar to ecosystem restoration, but mitigation simply compensates for project impacts. As long as mitigation programs only help to compensate for project impacts elsewhere in the watershed that are truly unavoidable, and do not serve to encourage otherwise unacceptable habitat degradation, they can benefit focused efforts to restore important habitats and wetlands. Mitigation banks, which tend to perform restoration work first and then sell credits to entities that are required to mitigate, or in-lieu fee programs, which can contribute funding to acquisition and restoration projects that are underway, are both viable forms of mitigating damaging effects of construction projects in sensitive areas.

In contrast, ecosystem restoration raises the overall level of ecosystem health. One example is the Tri-County Funding for Improved Salmonid Habitat (F.I.S.H.) Team. Ventura, Santa Barbara and San Luis Obispo Counties collaborate through a Memorandum of Understanding to improve salmonid habitat conditions and to implement restoration work that promotes long-term recovery of naturally-spawned salmonid populations. This group includes environmental groups, local and state agencies, and fishing interests. Progress depends upon grant funding to accomplish restoration work, much of it focused on elimination of in-stream barriers. Opportunities exist

whereby property owners and watershed protection districts could implement many of the plans of this group to raise the level of ecosystem health.

Supplying water for ecosystem needs is often viewed as competing with supplying water for human needs (a win/lose paradigm), or responsible for increasing the cost of supplying human needs. There are many examples of integrating ecosystem restoration and water supply management with a resulting synergistic benefit for both people and the ecosystem of which people are a part. Examples include protection of upland areas and habitat cover to reduce erosion and siltation and structural and impervious-surface set backs from flood plains and streams to reduce loss of property and allow beneficial percolation of water. An integration of watershed management goals has the potential to reduce the conflict over water management actions, increase the support for ecosystem restoration and provide cost effective multi-issue solutions.

Background and Existing Efforts – Local and Statewide

Within the Region's three major watersheds, local groups work to bring about protection, restoration and enhancement and creation of integrated watershed management strategies with a focus on ecosystem restoration, recreation, and wetland protection. Jurisdictional barriers and limited funding has made measurable progress slow. Much of the efforts have been piecemeal with limited continuity, but there have been incremental improvements. Given the number of the groups listed below and their common goals, the potential for real and sustainable improvement is great. Therefore a primary goal is to bring together these groups under integrated watershed management planning strategies to effectively maximize their respective missions. Their efforts can be coordinated with the interests of water suppliers for long-term sustainability of the resource.

The list below includes an overview of some of the local groups and their efforts underway.

County and Incorporated Cities General Plan Policies. The Ventura County General Plan contains a list of Goals, Policies and Programs pertaining to water quantity and quality. One of the seven goals is to "Effectively manage the water resources of the County by adequately planning for the development, conservation and protection of water resources for present and future generations". The goals and policies are implemented through programs carried out by multiple County agencies. Part of the work of this plan is to identify the status of these programs and their effectiveness for both the Cities and the County. (See Land Use Section) (http://www.ventura.org/planning/plans/plans.htm)

County Resource Management Agency Wetland Mapping, Digital Database of Biological Resources and Reports. In addition to the Wetland and Streambed alteration permitting requirements, this website also provides a collection of resource documents, reports and studies for biological resources in the Ventura County.
http://www.ventura.org/planning/programs_services/bioresources/bio_resources.htm

Federal and State regulatory programs (Section 404 and 401 programs, Lake and Streambed Alteration program, Section 402 NPDES permit) The Ventura County Resource Management Agency Planning Division website provides information concerning permit requirements for any project that may affect streams and wetlands. Included on the website is the Wetland Project Permitting Guide which describes and provides information on Federal and State permitting processes with a focus on Ventura County. In addition, there is a Guide to Native and Invasive Streamside Plants along with other publications concerning protection of water resources and habitat protection.

(http://www.ventura.org/planning/programs_services/bio_resources/bio_resources.htm)

Santa Monica Mountains Conservancy. Through direct action, alliances, partnerships, and joint powers authorities, the Conservancy strategically buys, preserves, protects, restores, and enhances treasured pieces of Southern California to form an interlinking system of urban, rural and river parks, open space, trails, and wildlife habitats that are easily accessible to the general public. http://www.smmc.ca.gov/mission.html)

Southern California Wetland Recovery Project. SCWRP is a broad-based partnership, chaired by the State's Resources Agency and supported by the State Coastal Conservancy that has public agencies, non-profits, scientists, and local communities working cooperatively to acquire and restore rivers, streams, and wetlands in coastal Southern California. Using a non-regulatory approach and an ecosystem perspective, SCWRP members work together to identify wetland acquisition and restoration priorities, prepare plans for these priority sites, pool funds to undertake these projects, implement priority plans, and oversee post-project maintenance and monitoring. The following link provides a complete list of the studies, projects and habitat purchases supported or sponsored by this group. (http://www.scwrp.org/index.htm)

Southern California Coastal Water Research Project. SCCWRP is a joint powers agency focusing on marine environmental research. A joint powers agency is one that is formed when several government agencies have a common mission that can be better addressed by pooling resources and knowledge. The mission of this group is to gather the necessary scientific information so that member agencies can effectively, and cost-efficiently, protect the Southern California marine environment. The group also ensures the data collected and synthesized effectively reaches decision-makers, scientists and the public. Member agencies include Orange County, City of Los Angeles Bureau of Sanitation, California State Water Resources Control Board, California Regional Water Quality Control Board, Los Angeles Region, California Regional Water Quality Control Board, San Diego Region, U.S. Environmental Protection Agency, Region IX, Ventura County Watershed Protection District, and County of Los Angeles Public Works. (http://www.sccwrp.org/about/goals.htm)

Tri-County Funding for Improved Salmonid Habitat (F.I.S.H.) Team. The F.I.S.H. Team is a partnership between local government agencies, sponsoring agencies, and non-governmental organizations within San Luis Obispo, Santa Barbara and Ventura Counties to develop a regional approach to improve salmonid habitat conditions and to implement restoration work that promotes long-term recovery of naturally-spawned salmonid populations. Membership includes participants from San Luis Obispo, Santa Barbara and Ventura Counties. http://www.tcft.org/Participants.htm One of the main goals of the F.I.S.H. Team is to ensure that government agencies, special interest groups, and non-governmental organizations have equal opportunity to participate in the F.I.S.H. Team efforts. To date 15 agencies and organizations have signed the F.I.S.H. Team MOU (indicated by an asterisk) and a number of other groups actively participate in our regular public meetings. The following link provides a list of participating agencies. (http://www.tcft.org/Default.htm)

The University of California Cooperative Extension's Natural Resources Program. This program provides research-based information to serve as a basis for sound natural resource management in Los Angeles and Ventura Counties. With water as a primary limiting factor in Southern California, areas of focus for the Natural Resource Program are promoting a watershed approach to land and resource management, protecting and restoring aquatic habitat for

endangered species, and addressing the myriad factors that impact water quality in this urban-rural-wild landscape. http://celosangeles.ucdavis.edu/natural_resources/index.html

Ventura County Resource Conservation District Programs. Through various Federal, State and local funding sources, the VCRCD runs several programs out of its Somis office.

- Hillside Erosion Control Program (HECO)
- Calleguas Creek Watershed Stream bank Conservation Practice Permit Coordination Program
- Water Resources Conservation and Development
- Arundo Seed Viability Study
- VCRCD Long Range Plan
- Upper Santa Clara River Watershed Arundo/Tamarisk Removal Plan (SCARP)
- Ventura County Arundo Removal Demonstration Project
- Calleguas Mulching and Stream Restoration Program
- Watershed Protection and Flood Prevention Projects (PL-566)

(http://www.vcrcd.org/pages/programs.html)

Ventura County Watershed Protection District Stormwater Monitoring Program. The primary objectives of the municipal stormwater program are to effectively prohibit non-stormwater discharges and reduce the discharges from stormwater conveyance systems to the maximum extent practicable. This is accomplished through Best Management Practices (BMP's) and conditions placed on new development proposals. Specific information on the Stormwater Quality Urban Impact Mitigation Plan (SQUIMP) is provided in the web site listed below.
http://www.vcwatershed.org/Water&EnvironmentalResources/WaterQualityMonitoring.htm

Calleguas Creek Watershed Management Plan Steering Committee. The Calleguas Creek Watershed Management Plan Steering Committee with broad stakeholder participation and support, have been in existence since 1996 to address long range comprehensive water resource supplies, land use, economic development. Open space preservation, enhancement and management; and a public facility provision strategy which is cost-effective and provides benefits for all participants within the Watershed. The Calleguas Creek Watershed Management Plan, which was formally adopted by participating agencies in 2005, recommends a series of actions developed by participants to address Watershed-wide issues and needs in the categories described above. The Calleguas Creek Watershed Management Plan also examines existing data, and acquires and develops new data necessary to produce an accurate characterization of the Watershed. These data enable participants to develop additional action recommendations based on dependable technology and good science. (http://www.calleguascreek.org/ccwmp/index.)

Malibu Creek Stream Team. The Stream Team is a citizen monitoring program collecting high quality useable data to track the environmental health of the Malibu Creek Watershed. The Stream Team efficiently partners the information needs of environmental groups, local, State, and Federal agencies with citizens who actively volunteer their time. The combined efforts of this partnership enhance the ecological function and improve water quality throughout the watershed, which in turn will improve water quality at the Malibu Lagoon State Park and Surfrider Beach. In fact, the data collected by Stream Team volunteers has already been instrumental in creating new and more protective water quality standards in the Malibu Creek

Malibu Creek Watershed Advisory Council. The Malibu Creek Watershed Advisory Council is made up of a long list of representatives working to protect and preserve the health of the Malibu Creek Watershed and its adjoining watersheds. These representatives helped create the *1995 Natural Resources Plan*, which serves as a planning guide for overall watershed health. This Natural Resources Plan outlined 44 Action Items, later distilled to the Top Ten Watershed Restoration Priorities in the 2001 *Making Progress: Restoration of the Malibu Creek Watershed* report. Led by the Resource Conservation District of the Santa Monica Mountains, the Council meets every other month to discuss watershed-related issues pursuant to these priorities. The meeting is public; we welcome your attendance. To receive Advisory Council meeting notices, please contact the Resource Conservation District at (310) 455-1030. http://www.malibuwatershed.org/2ndLevel/about.html

Santa Clara River Parkway. The Santa Clara River Parkway is a project of the California State Coastal Conservancy, in collaboration with The Nature Conservancy's LA-Ventura Project, Friends of the Santa Clara River, private landowners and local governments, to restores river and floodplain lands for habitat, flood protection, and recreation. http://www.santaclarariverparkway.org/

The Santa Clara River Watershed Committee (Lower Watershed Only). This Committee is developing the lower Santa Clara River Watershed component of the Watersheds Coalition of Ventura County (WCVC) Integrated Regional Water Management planning effort. The Committee has so far reviewed projects within the Ventura County portion of the Santa Clara River Watershed for inclusion in the WCVC Integrated Regional Water Management Plan, and is serving as a forum for discussion of the process for selecting actual projects to be included in the Plan in the future. The Committee is also working with stakeholders from the upper reaches of the Santa Clara River Watershed, which are located in Los Angeles County. Several upper watershed representatives have attended the meetings. Currently, the conveners of the Committee are: Sue Hughes, County of Ventura Executive Office, susan.hughes@ventura.org; Bruce Hamamoto, Los Angeles County Department of Public Works, bhamamo@ladpw.org; and E.J. Remson, Nature Conservancy, eremson@tnc.org, Dana Wisehart, UWCD, dana@unitedwater.org.

The Nature Conservancy Conservation Plan for the Santa Clara River Watershed. One of Southern California's last large free-flowing rivers, the 84-mile long Santa Clara River and associated riparian habitats are crucial to the survival of many sensitive species of wildlife, including the unarmored three-spine stickleback, the southern California steelhead trout and the California red-legged frog. Other native species that rely on the river include the arroyo toad, southwestern pond turtle, bobcat and many species of migratory songbirds. The Nature Conservancy identified key areas along the Santa Clara River, at Ormond Beach and in the Santa Susana Mountains that must be safeguarded, interlinked, and connected to already protected lands such as the Los Padres National Forest. The Conservancy is currently expanding the project area to encompass major tributaries of the Santa Clara River's eastern headwaters. Conservancy scientists also conduct studies to guide the recovery of the endangered southern California steelhead trout. (http://www.nature.org/wherewework/northamerica/states/california/press/vulcan072105.html)

Santa Clara River Trustee Council. The Santa Clara River Trustee Council is made up of representatives from the Department of Fish and Game Oil Spill Prevention (OSPR) and U.S. Fish and Wildlife. The Council was established to implement Santa Clara River Restoration projects using settlement funds paid by ARCO Pipeline Company following an oil spill that polluted 16 miles of the Santa Clara River. Since 1994, funded programs have included inventory of habitat and some land acquisition for protection of endangered species.

http://www.dfg.ca.gov/Ospr/organizational/admin/news/osprnews/Spring2006-OSPR-NEWS.pdf

Ojai Valley Land Conservancy. The Ojai Valley Land Conservancy has, over the past 7 years, protected nearly 2,000 acres and over 3 miles of the Ventura River in the Ojai Basin. It is currently involved in numerous restoration projects along the river, has recently completed an extensive planning effort for upcoming restoration of the Ventura River Preserve, and is working towards implementation of the Ventura River Parkway with its project partners. http://www.ovlc.org

Trust for Public Land. The Trust for Public Land, is developing a plan for the Ventura River Parkway with its project partners, which, in close coordination with the planned removal of Matilija Dam, will provide fisheries and habitat protection, flood management benefits, water quality improvements, and recreational access on the Ventura River. http://www.tpl.org

Ventura Hillsides Conservancy. The Ventura Hillsides Conservancy (VHC) is developing a plan for protection of the hillsides above the City of Ventura, including protection and restoration of coastal watersheds that flow to Ventura's popular beaches. VHC's proposed Hillsides Preserve will provide habitat linkage to the Ventura River Parkway project as well as northward to protected areas around the Ojai Valley. http://www.venturahillsides.org

Ventura River Stream Team. As a program coordinated by the Santa Barbara Channelkeeper, Stream Team recruits and trains community members to take part in monthly water quality monitoring sessions. Although the Cities and Counties test ocean and creek water weekly at many spots, there is no regular and comprehensive testing of either the Ventura River Watershed or the Goleta Slough Watershed. http://www.stream-team.org/index.html

Matilija Coalition. The Matilija Coalition is an alliance of community groups, businesses, and individuals committed to the environmental restoration of the Ventura River Watershed. Starting with the removal of Matilija Dam, the Matilija Coalition is working for the recovery of the bioregion to benefit the recovery of the southern California steelhead trout and to restore the natural sediment supply to the beaches of Ventura. http://www.matilija-coalition.org

Ventura River Habitat Conservation Plan. The Ventura River Multiple Species Habitat Conservation Plan (MSHCP) is a regional, multi-agency Habitat Conservation Plan focusing on the conservation of endangered species and their associated habitats in the Ventura River watershed. These endangered species include: southern California steelhead, least Bell's vireo, California red-legged frog and tidewater goby. One of the most challenging issues facing communities in the Ventura River basin is providing municipal services adequate to sustain domestic, industrial, and agricultural needs, while at the same time, maintaining and improving the ecological quality to support recreation, fish and wildlife, and other environmental demands. Opportunities for growth, prosperity, and quality of life in the Ventura River basin are, in part, dependent upon effective management of the Ventura River and its tributaries. In this light, a number of public agencies have joined in a cooperative effort to develop this MSHCP for their activities in and adjacent to the Ventura River.

The Cooperating Agencies operate and maintain facilities that may affect listed species or their habitats in the Ventura River watershed. To comply with the Federal Endangered Species Act (Act), they have undertaken the preparation of a MSHCP to serve as a basis for an Incidental Take Permit

under Section 10 of the Act. The Cooperating Agencies anticipate that the Permits issued by the National Oceanic and Atmospheric Administration Fisheries and the U.S. Fish and Wildlife Service will authorize them to "take" listed or endangered species and their habitat within limits defined by the Permits. Such "take" would be incidental to the otherwise lawful activities associated with providing essential services to communities within the Ventura River watershed.

The Ventura River Steelhead Restoration and Recovery Plan, December 1997, prepared for the Cooperating Agencies by Entrix, Inc., (1) identified measures to mitigate impacts of ongoing operations and maintenance activities and of future projects and (2) identified and evaluated opportunities to promote recover and restoration of steelhead in the watershed, including the removal of Matilija Dam. http://www.casitaswater.org/ventura hcp/ventura river HCP.htm

Ventura River Watershed Council. This council is developing the Ventura River Watershed component of the County Watersheds Coalition's of Ventura County Integrated Regional Water Management planning effort. The Council monitors the Watershed Coalition activities, reviews projects within the Ventura River Watershed for inclusion in the WCVC Integrated Regional Water Management Plan, and is a forum for discussion of the process for selecting actual projects to be included in the Plan. (Bob Thiel, State Coastal Conservancy, Post Office Box 23440,Santa Barbara, CA 93121,805.957.9299, bthiel@scc.ca.gov)

Ventura County Watershed Protection District and Army Corps of Engineers. Water diversion and storage structures, such as the Matilija Dam and Reservoir commonly have harmful impacts on natural habitat. This 190 foot high concrete arch dam, completed in 1947 has various problems, including large volumes of sediment deposited behind the dam and the loss of the majority of the water supply function and designed flood control capability; the deteriorating condition of the dam; the never-functional fish ladder and overall obstruction to migratory fishes such as the Federally listed endangered southern California steelhead trout; the loss of riparian and wildlife corridors between the Ventura River and Matilija Creek; and the loss of sediment transport contributions from upstream of the dam, with resulting erosion to downstream reaches of the Ventura River, the estuary and the sand-starved beaches along the Ventura County shoreline. Sedimentation behind the dam has rapidly reduced the ability to store a significant amount of water for future use and has significantly altered the natural river ecosystem. It is estimated that approximately 6 million cubic yards of sediments (silts, sands, gravels, cobbles and boulders) have accumulated behind the dam. A relatively small and shallow lake remains behind the dam, presently estimated to be less than 500 acre feet or barely seven percent of the original capacity.

In September 2004, the Army Corps of Engineers issued the Matilija Dam Ecosystem Restoration Feasibility Study Final Report, recommending full dam removal in one phase and short-term storage of a portion of the trapped sediment within the reservoir basin.
http://www.matilijadam.org/

Benefits of Implementation

Natural ecosystems provide people with food, fuel and timber. More fundamentally, ecosystem services involve the purification of air and water, detoxification and decomposition of wastes, regulation of climate, regeneration of soil fertility, and pollination of crops. Such processes have been estimated to be worth trillions of dollars annually (Daily et al. 1997).
http://www.actionbioscience.org/environment/esa.html.

Restoration can improve plant and animal life, increase diversity and connectivity of habitat, help endangered species, and improve watersheds. Restoration can rehabilitate natural processes to support native communities with minimal ongoing help. Restored habitats are likely to help sustain reproduction, foraging, shelter, and other needs of fish and wildlife species. By broadening restoration to the ecosystem level, rather than focusing on restoration for only a handful of species, we improve
our chances for long-term success by incorporating species relationships, such as between predators and prey, physical processes, genetic variability, and other factors that we don't fully understand.

As understanding of the linkage between water management and the health of the natural infrastructure grows, the benefits of restoration to water supply reliability and water quality improvements are increasingly evident. As ecosystems such as wetlands and sloughs are restored, their natural pollutant filtering capabilities can improve water quality. As floodplains and
seasonal lakes and ponds are restored, groundwater recharge can increase. The result will be a more reliable, higher quality water supply supported by a sustainable ecosystem.

The economic benefits that improved rivers, estuaries, wetlands, wildlife, beaches, and their surrounding habitats can have in the state may far exceed the investments for restoring ecosystems.

The Millennium Ecosystem Assessment released in 2005 showed that 60 percent of ecosystem services are being degraded or used unsustainably (wikipedia.org).

"New York City is a case in point. Before it became overwhelmed by agricultural and sewage runoff, the watershed of the Catskill Mountains provided New York City with water ranked among the best in the Nation by Consumer Reports. When the water fell below quality standards, the City investigated what it would cost to install an artificial filtration plant. The estimated price tag for this new facility was six to eight billion dollars, plus annual operating costs of 300 million dollars – a high price to pay for what once was free. New York City decided instead to invest a fraction of that cost ($660 million) in restoring the natural capital it had in the Catskills watershed. In 1997, the City raised an Environmental Bond Issue and is currently using the funds to purchase land and halt development in the watershed, to compensate property owners for development restrictions on their land, and to subsidize the improvement of septic systems "(Ecological Society of America, http://www.actionbioscience.org/environment/esa.html)

A strategy of incremental steps and programs towards ecosystem protection can begin the process of creating a sustainable watershed regime. One recommendation for the local participating jurisdictions is a water course set back ordinance. Such an ordinance would establish a minimum "set back" for all structures and paved areas to allow for protection of river and creek meander, maximize groundwater recharge, riparian growth, and result in fewer structures damaged or lost during storm flows.

Crissy Field Restoration: San Francisco Bay, National Park Service

Before:

After:

(Photo courtesy of Society for Ecological Restoration International, ser.org)

Constraints to Implementation

- Political resistance
- Jurisdictional barriers
- Too costly to implement or lack of funding
- Existing policy and opposition to change (internal)
- Public resistance/fear of the unknown (external)
- Competing priorities (internal and external)

Related Documents and Websites

Preservation and Conservation of the Ecosystem
http://www.forestwonderer.com/conservation_preservation_id17.html

Santa Clara River Restoration http://www.fws.gov/ventura/ec/scriver-restoration/scriver.html

Society for Ecosystem Restoration http://www.ser.org/

Santa Clara River Parkway http://www.santaclarariverparkway.org/wkb/projects/scrfeasibility

Fish and Wildlife Service http://www.fws.gov/ventura/ec/scriver-restoration/scriver.html

Department of Fish and Game http://www.delta.dfg.ca.gov/erp/

South Coast Wildlands http://www.scwildlands.org/

A Guide to Restoration Ecology

Center for Biological Diversity http://www.sw-center.org/swcbd/press/4forests4-2-02.html

Matilija Dam Ecosystem Restoration Project - http://www.matilijadam.org/

Society for Ecological Restoration International – official website.

Society for Ecological Restoration Primer of Ecological Restoration

Ecological Restoration- Journal published by the University of Wisconsin Press for people interested in all aspects of the practice of ecological restoration.

Restoration Ecology – Journal published on behalf of the Society for Ecological Restoration International

Recommended Future Projects or Actions

Ecosystem Protection and Restoration Recommendations for Programs and Projects

Objectives
Protect and enhance native ecosystem diversity
Control, remove and prevent invasive species
Protect existing habitats from degradation
Create new wetlands in appropriate hydrologic settings
Protect, restore and enhance existing wetlands and waterbodies
Promote urban stream restoration and revitalization
Recommended Programs and Actions
Create Watershed Councils – Bring together the various water and watershed management groups by watershed to more effectively achieve mutual goals.
Coordinate ecosystem restoration efforts with goals of water suppliers to achieve long term sustainability of the Region's water resources.
Acquire land and/or easements for protection and restoration of habitat areas landscape linkages/wildlife movement. Specific project locations being supported by conservation organizations include: •Lower Conejo Creek Acquisition – Future restoration activities would include widening the flood plain and allowing the creek to meander more freely in this area. •Ormond Beach Wetlands Restoration Plan - restoring tidal action to portions of the property; restoring historic drainage patterns disrupted by filling and tile drainage systems installed for agricultural use; and recreating a mix of tidal and seasonal wetlands with associated grasslands. •Ormond Beach Wetlands Acquisition – Future acquisition of adjacent agriculture property could provide a buffer to the wetlands. •Matilija Dam Ecosystem Restoration Project – The purpose of the project is to remove barriers to steelhead passage (including Matilija Dam), restore sediment transport and natural hydrologic regimes on the river, and restore riparian and wetland habitat. •Santa Clara River Parkway Acquisitions - Acquire fee title or conservation easements to approximately 4,000 acres along the lower 15 miles of the Santa Clara River for inclusion in the Santa Clara River Parkway. •Ventura River Arundo Removal Demonstration Project – Remove giant reed (*Arundo donax*) from a 5-acre parcel adjacent to the Ventura River and revegetate with native riparian species. The project served as a demonstration project to understand the cost and efficacy of various removal methods. •Ventura River Parkway – This project will acquire fee title or conservation easements along the lower 15 miles of the Ventura River to create a comprehensive River Parkway that protects habitat creates wildlife linkages and reconnects the river to its floodplain.

Protect and restore fish and wildlife migration corridors and landscape linkages; where necessary create or modify structures to facilitate fish and wildlife movement, such as fish ladders, road under-crossings, etc.
Submit proposals for fish restoration projects in collaboration with the Tri County Funding for Improved Salmonid Habitat (F.I.S.H.) Team.
Restore natural hydrograph and sediment transport in local watercourses
Establish mitigation banking and in-lieu fee program opportunities
Integrated Watershed GIS "Spatial Database"
Conduct hydrogeomorphic modeling
Identify and collect biological resources data for comprehensive database: 1) ecosystem function analysis 2) water quantity and quality needs of fish and wildlife.
Provide for long-term stewardship of natural resources, especially public land : staff, funding, organizational structure (district or conservancy) monitoring and enforcement
Adopt conservation plans that evaluate multiple scale habitat needs of aquatic and riparian dependent species
Recommended Actions for Land Use Planning Documents and Programs
Conduct updates and modifications to general plan policies
Develop and implement watercourse setback ordinances or policies
Define and protect riparian corridor buffers
Reduce impervious surface areas in new development; promote/require low impact development (LID)
Implement floodplain development restrictions
Map sensitive biological areas overlay zones
Map flood hazard zones
Require evaluation of footprint impacts in newly developing areas
Eliminate disincentives for restoration areas in Land Conservation Act areas
Create incentives (tax credits) for land owners to protect and restore habitats and ecosystems on their property

Integration with Other Strategies

One measure of integrated regional watershed management planning is how well water management strategies work together to produce a compatible or synergistic effect in water management. By definition, ecosystem protection and restoration strategies have as their basis the long-term sustainability and adaptability of biological, chemical, and hydrogeological environment to the benefit of water supply and water quality. The strategies listed below can be found in other sections of the plan but are directly linked to and promote ecosystem conservation and restoration.

- Buffers/watercourse setbacks provide: opportunities for natural and "soft" flood management, capture and infiltration of stormwater, water quality improvement for rivers/stream/wetlands, decreases NPS pollution/sheet flow.

- Land use policy revisions or new policy mandates for a more comprehensive approach to development, floodplain management, and long-term protection of biological resources.
- Water conservation by residents and agricultural operations allows for more water for habitats, especially in areas of the Region that do not rely on State water (Santa Clara River, Ventura River).
- Protection and enhancement of rivers/streams/wetlands improves the quality of passive recreational opportunities
- Removal of invasive vegetation increases surface water storage capacity, groundwater management, river/stream/wetland/floodplain enhancement, water supply reliability, flooding/erosion management

Possible Funding Sources

- Local funding (i.e. joint funding from water districts' general funds, user fees, surcharges or other local funding mechanisms)
- State and Federal grants (DWR, USBR, EPA, SWRCB/RWQCB, DFG)

5.2.4 Flood Management

Description

With Excerpts from the California Water Plan Update 2005

Flood management reduces risks to life and property and benefits natural resources. Flood management accepts period flooding and generally is a preferred alternative to keeping rivers in their channels and off floodplains. Seasonal inundation of floodplains provides essential habitat for hundreds of species of plants and animals, many of them dependent on periodic floods. There are also benefits to the economy, agriculture, and society to keeping rivers and their floodplains connected, including water quality improvements and groundwater recharge. Examples of flood management objectives include:

1. *Minimize impacts of floods on buildings and farmland*
2. *Remove obstacles in the floodplain, voluntarily or with compensation*
3. *Prevent interference with the safe operation of the flood management systems*
4. *Maintain or restore natural floodplain processes*
5. *Educate the public about avoiding flood risks and about planning for emergencies*
6. *Reduce flooding risks to humans.*

Floods occur when runoff exceeds the capacity of river or stream channel, overflowing into the low-lying lands called floodplains. Human activity in the floodplain areas, often contribute to flood damage.

Physical damage from floods includes the following:

Inundation of structures, causing water damage to structural elements and contents.

Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.

Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects. Destruction of crops, erosion of topsoil, and deposition of debris and sediment on croplands.

Release of sewage and hazardous or toxic materials as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

Floods also cause economic losses through closure of businesses and government facilities, disrupt communications, disrupt the provision of utilities such as water and sewer, result in excessive expenditures for emergency response, and generally disrupt the normal function of a community. Flood management strategies recommended in this document will serve as guidelines to address concerns and prevent some of the damage listed above.

Background and Existing Efforts – Local and Statewide

Flood management is generally guided by local, State, and Federal entities but relies upon the local communities for implementation. Local communities like cities, through the adoption of

ordinances and the formation of special districts, manage development in floodplains and implement flood mitigation projects that prevent flood damages.

Existing flood management efforts by the Ventura County Watershed Protection District (District) and other local entities (eg. Cities) include application of hydrologic design standards to evaluate the increase in flooding due to proposed development. The results of the design studies are used to develop mitigation strategies for reducing developed peak flows in the channel system. The District also engages in sediment transport studies of the major streams to evaluate the effects of development on scour and deposition in the channels and their effect on flooding.

In order to develop regional solutions to flooding, the District has devoted significant funds and staff resource in watershed-level feasibility studies on all of the major streams such as Calleguas Creek, Santa Clara River, and Ventura River (Matilija Dam Ecosystem Restoration project). The District has also developed an Integrated Watershed Protection Plan (IWPP) that identifies local and regional problems and opportunities to reduce flooding in the County and outlines funding needs over a 20-year planning horizon. Development of the IWPP documents are coordinated with local Cities and other agencies. The objectives of the county-wide IWPP are the following:

1. To provide a systematic process for the inclusion of projects into the District's Capital Improvement Plan (CIP) over its five-year planning period.

2. To improve the long-range District planning process for the 20-year period subsequent to the CIP by allocating projected revenues to identified projects.

3. To provide program goal and priority articulation.

4. To improve interagency project coordination.

5. To help identify funding opportunities.

Many of the projects included on the IWPP project list are updated in conjunction with the watershed-level feasibility studies. By comparing the total projected revenues to the total problem solution costs for the IWPP project list within a zone, an appropriate level of service for solving flooding problems is determined. The Level-of-Service evaluation assists the District, their Board of Supervisors, and stakeholder groups in identifying the need for additional funding to achieve desired flood mitigation levels.

The IWPP and Feasibility Studies provide a list of potential projects to mitigate flooding problems in Ventura County. More general strategies to address flooding concerns were developed in the "Flood Mitigation Plan for Ventura County, California (WPD, 2005)." The Flood Mitigation Plan (FMP) was written to outline the planning efforts to reduce risks associated with flooding, post-fire debris flow, dam failure, and to mitigate the losses from repetitively damaged structures in the County. The FMP gives the County the ability to apply for project grants to implement the FMP strategies.

FMP strategies to mitigate flooding damages include:

1. Build and support local capacity and commitment to become less vulnerable to flood hazards.

2. Promote public understanding, support, and demand for regional flood hazard mitigation.

3. Reduce the possibility of damage and losses to assets, particularly people, critical facilities, and District-owned facilities, due to floods.

4. Reduce the possibility of damage and losses to assets, particularly people, critical facilities, and District-owned facilities, due to dam failure.

5. Reduce the possibility of damage and losses to assets, particularly people, critical facilities, and District-owned facilities, due to post-fire debris flows.

6. Reduce the number of repetitively damaged structures and the associated claims to the National Flood Insurance Program.

The IWPP provides for several categories of specific projects intended to reduce flooding in Ventura County. Projects are proposed to address the flooding concerns identified in each of the four watersheds of Ventura County; Ventura River, Santa Clara River, Calleguas Creek and Malibu Creek.

Countywide flooding issues are addressed through a number of different project categories as follows: Operation and Maintenance (O&M); Structural Life; Detention/Debris Basin Retrofit and Upgrade; Flooding Mitigation; Deficiency Study; Right-of-Way/Jurisdiction; Dam Safety and Retrofit; Environmental and Aesthetic Enhancement; and Demonstration Projects.

The definition of each category is provided in the following sections. A project can sometimes fit into more than one category, so a project is generally categorized according to the most important element associated with the project. For example, if a facility has been identified that requires frequent maintenance due to flooding problems, it is generally put into the O&M category, instead of the Flooding Mitigation category. On the other hand, facilities that are subject to extensive flooding, but do not require extensive maintenance, would be put into the Flooding Mitigation category.

Operations and Maintenance Projects

The O&M projects include facilities with known historic or current problems that require repairs and remediation. The known O&M problems include channel bank erosion, excessive sediment deposition, inadequate drainage facility capacity, channel lining damage, lack of capacity due to vegetation growth, and lack of access to perform necessary maintenance activities.

Structural Life Projects

Structural Life Projects represent channel reaches that may require upgrading or replacement because they are reaching the end of their design life. For planning purposes, Watershed Protection District facilities are assumed to have a useful life of approximately 50 years. Using a 2020 planning horizon, structures built prior to 1970 that will be 50 years or older by 2020, will be candidates for replacement. Channels that are approaching their design life and also lack capacity for current design peak flow estimates are given priority for repair/replacement.

Detention/Debris Basin Retrofit and Upgrade Projects

The detention and debris basins constructed prior to 1970 were built primarily to capture debris and do not provide significant detention or attenuation of inflow peaks. These basins with storage or safety deficiencies may require operability improvements. These include the debris/detention basins in the Watershed Protection District's Debris Basin Manual (1999). However, more recently constructed basins were generally built for both runoff detention and debris capture.

Basins throughout the region have been evaluated to determine whether existing conditions warrant basin improvements or removal. The evaluation of existing conditions consisted of field reconnaissance of each basin to take photos of the basins, principal spillways, emergency spillways, riser structures and downstream channels. The general conditions of the basins such as vegetation, rip-rap, basin side slopes, and upstream drainage area were also documented. Preliminary analyses consisted of sediment yield estimates and hydrologic/hydraulic analyses to determine if the basins could be retrofitted to improve their flood control capabilities. Several basins were identified as having inadequate operational and emergency spillways that could lead to flooding in downstream developments.

Dam Safety and Retrofit Projects
There are a number of dams with possible structural and performance problems due to design, construction, or maintenance issues which have been identified.

Right-of-Way/Jurisdiction Projects
The Right-of-Way (ROW)/Jurisdiction projects include those facilities that have access or jurisdictional issues.

Flooding Mitigation Projects
The Flooding Mitigation Projects consist of the channel reaches along District jurisdictional channels that are located within the 100-year Federal Emergency Management Agency (FEMA) floodplain boundaries. Flood damages were estimated based on FEMA 100-year floodplain information, land use data, and structural value information contained in the Ventura County's parcel database. Flood mitigation project costs were estimated based on the associated damages, and detailed deficiency analyses were not performed to determine the improvements to solve the flooding problem. The resultant projects are general flood mitigation projects with construction costs equal to the flooding damages.

For detailed information on the IWPP Implementation process, see the IWPP Reports at http://www.vcwatershed.org/Projects_IWPP.html.

Local cities operate local storm drain projects; many of the storm drains feeding into the WPD facilities are built by cities or developers for cities.

Benefits of Implementation

Flood management provides many safety, ecosystem and economic benefits. By encouraging wise land use decisions along river corridors, flood management can
save lives, improve ecosystems and reduce property and livestock losses. By making better land use decisions, more open space, such as agriculture and native habitats, could be maintained. Controlling development within the floodplain, and even removing some property from the floodplain, can significantly reduce potential future flood risk to people and property and reduce operation and maintenance costs. Periodic flooding of the floodplain can provide rearing habitat that favors native fish over exotics. Reconnecting rivers to floodplains helps ecosystems and increases groundwater recharge, benefiting groundwater supplies.

Creative strategies for flood management will also lead to reduced costs to the Watershed Protection District for flooding damages, environmental mitigation requirements, and reduced facility construction costs.

Constraints to Implementation

The constraints associated with specific and programmatic actions for flood management are mostly financial. For the IWPP projects, the monies available from the Watershed Protection District's revenue stream each year only allow a small percentage of the flood management projects to be built. Even the more generalized programmatic projects identified in the FMP require resources that the Watershed Protection District does not currently have after meeting the day-to-day requirements of permit review, hydrology studies, and design studies. In order to complete the projects identified above, alternative sources of funding must be identified in order to achieve some of the goals and reduce flooding damages in Ventura County.

Related Documents and Websites

Documents

California Water Plan (Bulletin 160-2005) Volume 2, Chapter 25.

CALFED Bay-Delta Program. 2000. Strategic Plan for Ecosystem Restoration.

California Floodplain Management Task Force, 2002. California Floodplain Management Report.

Calleguas Creek Watershed Management Plan Committee. *Calleguas Creek Watershed Management Plan, A Cooperative Strategy for Resource Management and Protection and Integrated Regional Water Management Plan*. June 2005.

Ventura County Watershed Protection District. *Integrated Watershed Protection Plan*. Fiscal Year 2005, Zone 1. November, 2004.

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United States Army Corps of Engineers, Los Angeles District. *Matilija Dam Ecosystem Restoration Feasibility Study – Final Report*. September 2004.

United States Army Corps of Engineers 2001. *Matilija Dam Ecosystem Restoration Feasibility Study, Ventura County, CA: Project Management Plan*. United States Army Corps of Engineers, Los Angeles District, South Pacific Division, April. http://www.matilijadam.org/pmp.pdf.

Ventura Countywide Proposition 50 Projects - Flood-Related Goals, Problems and Issues, Prepared By Ventura County Watershed Protection District, February 2005.

Web Resources

For detailed information on the IWPP Implementation process, see the IWPP Reports at http://www.vcwatershed.org/Projects_IWPP.html.

For a pdf copy of the Flood Mitigation Plan- http://www.vcwatershed.org/

For documents related to the regional hazard mitigation plan
http://www.countyofventura.org/rhmp/

Recommended Future Projects or Actions

The FMP provides detailed objectives for achieving the goals for each flood management strategy. Based on these strategies, a number of prioritized action items were developed, including:

1. Work with the Watershed Protection District, the communities and FEMA to produce updated flood hazard studies within the major watersheds.

2. Update flood layers in Geographic Information System (GIS) upon FEMA approval of Letter of Map Revision/Letter of Map Amendment (LOMRs/LOMAs) and send updated FIRM layers to affected communities.

3. Work with the Watershed Protection District to enhance ALERT system by adding gauges, calibrating models, and establishing system capacities and peak flow levels that would lead to flooding.

4. Retrofit dams with inadequate emergency spillway capacity to minimize the possibility of dam failure during storm events.

5. Develop, maintain and update a Repetitive Loss Database that identifies structures by number of losses, dollar amount of losses, location of structure, and location of structure relative to the 100-year floodplain.

6. Host local California Department of Water Resources workshops for the community. Workshops should include: Floodplain Management and Duties of the Local Administrator; FEMA Elevation Certificate; Substantial Improvement and Substantial Damage; and Approximate A Zone.

7. Join the National Flood Insurance Program's Community Rating System.

8. Remove repetitively damaged, high-risk structures from the floodplain and coastal areas. Survey property owners in floodplain and coastal damage areas regarding voluntary buyout or elevation of flood-prone buildings and structures.

9. Implement minor physical flood mitigation project that do not duplicate the flood-prevention activities. These include modification of existing culverts and bridges, installation or modification of floodgates, stabilization of streambanks, and creation of small debris or flood/stormwater retention basins in small watersheds.

The FMP provides detailed information about the action items and the process for achieving the desired goals, including responsible organization, potential funding source, implementation timeline, economic justification, and priority level.

If additional funding is available, a specific project from the prioritized IWPP project list can be selected and constructed to reduce flooding.

Integration with Other Strategies

Projects for flood management to reduce flooding impacts and damages and programmatic efforts are related to many of the water management strategies contained in this IRWMP. Construction of detention dams may contribute to water storage, enhanced infiltration, and thus water conservation and conjunctive use. Other projects will provide for joint use of floodplains, enhancing recreation and public access opportunities. Preserving floodplains and restoring wetland areas to reduce flooding will provide for ecosystem restoration, wetlands enhancement and creation, water quality protection and improvement and stormwater capture and management. The proposed projects are all part of watershed planning efforts that take a comprehensive look at the watersheds to provide for cost effective regional solutions to flooding problems.

Proper implementation of flood management projects can provide benefits to the following other water management strategies:

- Ecosystem Restoration
- Environmental and habitat protection and improvement
- Water Supply Reliability
- Groundwater management
- Recreation and public access
- Stormwater capture and management
- Water quality protection and improvement
- Water recycling
- Wetlands enhancement and creation
- Conjunctive use
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning

Possible Funding Sources

- Local funding (i.e. joint funding from water districts' general funds, user fees or surcharges)
- State and Federal grants (DWR, USBR, EPA, SWRCB/RWQCB)

5.2.5 Groundwater Management

Description

In Ventura County, groundwater management is conducted using a wide variety of mechanisms. Essentially all the major groundwater basins in the county are actively managed. The various forms of management include:

- Special-act Groundwater Management Agencies – Fox Canyon Groundwater Management Agency (Las Posas, Oxnard Plain Forebay, Oxnard Plain, Pleasant Valley, Santa Rosa basins, East Las Posas, West Las Posas, Mugu Forebay and South Las Posas) and Ojai Basin Groundwater Management Agency (Ojai basin).
- AB 3030 Groundwater Management Plan (Piru and Fillmore basins).
- Court Adjudication (Santa Paula basin).
- Memorandums of Understanding (Las Posas basin, basins on both sides of County line with Los Angeles County water purveyors).
- County Ordinances (e.g., well drilling and destruction requirements).
- Groundwater cleanup authority (agreement between Los Angeles Regional Water Quality Control Board and Ventura County Environmental Health Department.
- TMDL requirements (LA Regional Board for Calleguas Creek and Santa Clara River watersheds).
- Enforcement Actions (eg. Oxnard Forebay – removal of septic systems)

The Groundwater management agencies and the AB 3030 basins have groundwater management plans that are being updated regularly. Most recently, Basin Management Objectives have been added to the plans so that the health of the basins can be evaluated against numeric targets. These plans also evaluate specific future management strategies and projects. For the Oxnard Plain and associated basins, there are extensive facilities that have been constructed to further groundwater management goals (see accompanying section on Conjunctive Use). A copy of the new draft management plan for the Fox Canyon Groundwater Management Agency has been included with the grant application package.

Existing Efforts

The FCGMA was initially created to manage the groundwater in both overdrafted and potentially seawater-intruded areas within Ventura County. The prime objectives and purposes of the FCGMA are to preserve groundwater resources for agricultural, municipal, and industrial uses in the best interests of the public and for the common benefit of all water users. Protection of water quality and quantity along with maintenance of long-term water supply are included in those goals and objectives. The goals of the Ojai Basin Groundwater Management Agency (OBGMA) and UWCD are very similar, but cover somewhat different geographic areas. Less than one-third of Ventura County, however, is managed by any formal water management agency or plan.

Prior to the creation of the FCGMA in 1983, the State Water Resources Control Board (SWRCB), as a condition to a State grant for the Seawater Intrusion Abatement Project, ordered the UWCD and Ventura County as grantees, to develop a Groundwater Management Plan for the purpose of controlling extractions and balancing water supply and demand in both the Upper and Lower Aquifer Systems. In response to this order, the Fox Canyon Groundwater Management Agency

Act was submitted to the California State Legislature, which enacted and passed State Assembly Bill 2995 on September 13, 1982 creating the FCGMA. The FCGMA began operations on January 1, 1983, and the enabling legislation is now contained in the California State Water Code Appendix, Chapter 121.

Initial goals of the FCGMA included balancing water supply and demand in the Upper Aquifer System by the year 2000 and in the Lower Aquifer System by year 2010. These goals and the FCGMA's basic purpose remain relatively unchanged today.

The original Groundwater Management Plan for the Fox Canyon Groundwater Management Agency was prepared in 1985. This original document is currently being updated. Through focused monitoring programs, studies, and modeling, we now have a better understanding of the aquifers beneath the Calleguas Creek and Santa Clara River drainage basins. There has also been a sufficient period of time to observe how existing water management policies and water conservation facilities have improved groundwater conditions.

The goals of the revised FCGMA, the current UWCD, and the adopted OBGMA Management Plans are primarily to set specific, measurable management objectives for each basin, identify strategies to reach these goals, and set future policy to help implement these strategies. The FCGMA and OBGMA are not authorized to build and operate conservation facilities, so the focus of most Plans is on strategies and policies that can assist conservation projects implemented by other agencies like the UWCD. Thus, the FCGMA and OBGMA tend to act more as partners with other water agencies and cities in improving aquifer conditions.

A main focus of both the UWCD and FCGMA previous management activities was to contain seawater intrusion beneath the Oxnard Plain. The combination of several FCGMA management policies and new UWCD surface water diversion facilities and utilization of existing UWCD recharge ponds, has served to alter seawater intrusion in at least a portion of the aquifers. Monitoring wells indicate that seawater intrusion has retreated, with groundwater in one well near the City of Port Hueneme improving from near-seawater quality back to drinking water quality.

The containment of saline waters is not complete however. In the Lower Aquifer System of the Pleasant Valley and southern Oxnard Plain Pressure basins, saline waters both from the ocean and from adjacent fine-grained sediments have expanded the area of saline intrusion since 1985. This increase occurred primarily in the Upper Aquifer System near Point Mugu and the Lower Aquifer System in the Port Hueneme and Point Mugu areas. Thus, continuation of current strategies and the implementation of additional strategies are required to fully contain saline intrusion.

Existing water management strategies include:

- Increase recharge in the Oxnard Plain Forebay Groundwater Basin
- Prevent export of groundwater from FCGMA boundaries
- Shift pumping to the more easily replenished Upper Aquifer System
- Expand imports of State Project Water to replenish groundwater basins or offset demands
- Continue to utilize diversions from Calleguas Creek and the Santa Clara River
- Allow injection of pretreated surface or recycled water into overdrafted basins
- Continue destruction of abandoned or leaking wells
- Institute additional water conservation measures

- Consider further reductions in annual pumping allocations
- Pursue plans to meet additional monitoring needs

Benefits of Implementation

Groundwater is the largest single source of water used in Ventura County. It provides about 65 percent of the water utilized in Ventura County. Agricultural demand accounts for 80 percent of the total demand for groundwater in Ventura County. Many purveyors either wholesale water to other purveyors or make deliveries directly to individual users.

As of year-end 2005, there were 180 licensed water purveyors in Ventura County. This includes 6 city-owned and operated systems, 22 special water districts, 25 public water purveyors, 5 Public Utility Commission (PUC) regulated water companies, 63 mutual water companies and 59 other privately owned systems of varying sizes. In addition to the 500 or so water wells owned or operated by the retail and wholesale water providers, it is estimated there are about 2500 additional individual well owners within the county who obtain their own water directly from groundwater sources. Of the groundwater pumped in Ventura County, less than one-third is delivered by an organized water system. Individual well owners do most of the groundwater pumping in Ventura County and use it mostly for irrigation.

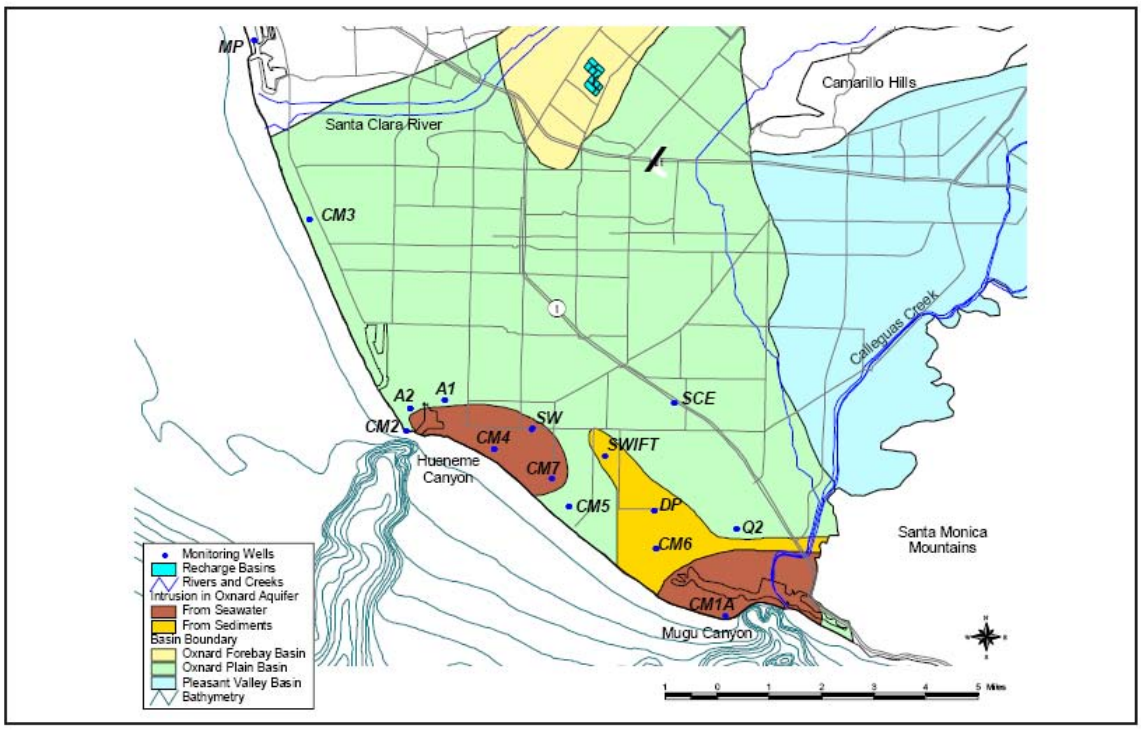


Figure 5-1
Areas of saline intrusion (indicated in brown and gold) beneath the Oxnard Plain, 2005.

Beneath the Oxnard Plain where the majority of the groundwater pumping takes place, overdraft of the Oxnard aquifer has been largely eliminated in recent years through effective management

practices and constant recharge activities. However, even with targeted improvements, some areas still remain impacted by saline waters previously drawn into the aquifer. The lower aquifers in the southern Oxnard Plain Pressure and Pleasant Valley groundwater basins are still seriously overdrafted and the intrusion of saline water continues. The United Water Conservation District (UWCD) has implemented several measures to help combat the seawater intrusion problem in these overdrafted areas. The Fox Canyon Groundwater Management Agency (FCGMA) has also tightened restrictions and instituted strict management procedures on all groundwater extractions and well operators located on parcels above the Fox Canyon aquifer.

Most farmers obtain water from their own wells, and water demand from the agricultural sector is decreasing, primarily due to water conservation and land conversion to urban uses. This trend is expected to continue. Countywide demand for agricultural water is forecasted to decline by the year 2010. Within the boundaries of the FCGMA, a 15 percent reduction in groundwater extractions has been implemented for all well owners.

Constraints to Implementation

In addition to saline intrusion near the coast, new threats to the aquifers have been recognized. These include salts introduced into the aquifers during historically high groundwater levels in the East and West Las Posas Basins and the northeastern portion of the Pleasant Valley Basin, increasing salinity in the Santa Clara River as it flows westward to the Pacific Ocean from Los Angeles County, and seasonally high nitrates in the Oxnard Plain Forebay and Arroyo Santa Rosa Basins. In addition it has been suggested that surrounding sediments may be increasing salinity levels in the groundwater in inland areas. Recommended strategies to deal with these issues include:

- Pumping and treatment of brackish shallow groundwater in the South Las Posas Basin
- Development of shallow brackish groundwater in the Pleasant Valley Basin
- Land use limitations on nitrate sources in portions of the Oxnard Plain Pressure and Forebay Basins and aquifer recharge zones
- Development of additional in-lieu recharge to the Oxnard Plain Pressure Basin

State Project Water -Calleguas Municipal Water District is currently in the final stages of constructing the Las Posas Aquifer Storage and Recovery (ASR) Project. The project is jointly funded by Calleguas and Metropolitan and will include 30 dual-purpose extraction and injection wells in three fields within the East Las Posas Groundwater Basin. The ASR project will have the capacity to eventually store up to 300,000 acre feet of imported State water for use during peak periods, droughts, scheduled shutdowns or emergencies. The ASR project will have a maximum replenishment rate of 80 cubic feet per second (cfs) and maximum extraction rate of 100 cfs. The project also includes several miles of large diameter pipelines to connect the wells to the Calleguas transmission system, a new pump station in the City of Moorpark to convey water to the Lake Bard Water Treatment Plant, and rehabilitation of the Conejo Pumping Station to deliver ASR water to upper elevation zones east of the Moorpark sewage treatment plant during an emergency.

RECHARGE SOURCES: Another potential threat to the Ventura County aquifers is the potential loss of a portion of the recharge waters that currently replenish the aquifers. These potential losses include decreased diversions from the Santa Clara River and the Ventura River for required fishery habitat flows, and changed operations of Santa Felicia Dam and the Robles Diversion mandated by Federal regulators. In order to preserve these important sources of recharge, water

management plans should emphasize the importance of this recharge in protecting the health of the natural water supplies within Ventura County.

Related Documents and Websites

Web Resources:

1. *The Fox Canyon GMA homepage at* *http://publicworks.countyofventura.org/fcgma/index.htm*

2. *The UWCD homepage at* *http://www.unitedwater.org*

3. *The Calleguas Municipal Water District homepage at* *http://www.calleguas.com/index.html*

4. *The Watersheds Coalition of Ventura County homepage at* *http://watershedscoalition.org*

Recently completed or updated water management plans or five-year plans developed by the following entities should be consulted for specific detailed strategies or actions;

5. California Regional Water Quality Control Board, Los Angeles Region – *Watershed Management Initiative*, October 2004 (addresses groundwater topics)

6. California Regional Water Quality Control Board, Los Angeles Region – *Water Quality Control Plan for the Los Angeles Region*. November 17, 1994 (includes groundwater issues)

7. Calleguas Creek Watershed Management Plan Committee – *Calleguas Creek Watershed Management Plan, A Cooperative Strategy for Resource Management and Protection and Integrated Regional Water Management Plan*. June 2005 (contains groundwater component)

8. Calleguas Municipal Water District – *Final Urban Water Management Plan*, December 2005 (groundwater management issues are addressed in conjunction with the overall plan)

9. Camrosa Water District – *Final Urban Water Management Plan*, December 2005 (groundwater management issues are addressed in conjunction with the overall plan)

10. Casitas Municipal Water District – *Urban Water Management Plan*, 2005 (groundwater management issues are addressed in conjunction with the overall plan)

11. City of Camarillo – *Urban Water Management Plan*, 2000 (contains groundwater components)

12. City of Oxnard Groundwater Recovery Enhancement and Treatment (GREAT) Program – *Final Program Environmental Impact Report,* Prepared by CH2M HILL, May 2004.

13. City of Oxnard – *Urban Water Management Plan*, 2005 (contains groundwater components)

14. City of San Buenaventura Department of Public Works – *Urban Water Management Plan*, December 2005 (contains groundwater components)

15. County of Ventura Waterworks District No. 1 (Moorpark) – *Urban Water Management Plan,* December 2005 (mentions groundwater needs, plans, and issues as critical components of plan)

16. County of Ventura Resource Management Agency and Public Works Agency – *Ventura County Water Management Plan, Volume I Goals, Policies and Programs*, and *Volume II Technical Appendix*, November 1994 (groundwater management issues are addressed in conjunction with the overall plan)

17. Fox Canyon Groundwater Management Agency – *Groundwater Management Plan Draft Update*, June 2006 (updates previous 1985 report with final 2006 version due by December 2006)

18. Ojai Basin Groundwater Management Agency – *Groundwater Management Plan, Section 701.1,* 1994.

19. United Water Conservation District. *Urban Water Management Plan for the Oxnard-Hueneme District*, February 2005 (contains vital groundwater components)

20. United Water Conservation District, City of Fillmore, et al. *AB 3030 Groundwater Management Plan for the Piru and Fillmore Basins,* 1996

21. County of Ventura – *Regional Water Quality Control Board 208 Areawide Water Quality Management Plan,* 1979-1980 *(the precursor to many Ventura County Groundwater and Urban Water Mgmt. Plans)*

Recommended Future Projects or Actions

Fox Canyon Aquifer System

The Calleguas Aquifer Storage and Recovery (ASR) project presents several advantages for the management of water supply and demand. By purchasing additional State Project Water (originating near the Sacramento Bay-Delta area) when such water is plentiful during winter months, the price is more reasonable. Injection and storage of this water underground in aquifers several hundred feet beneath the surface of the ground requires no construction of surface reservoirs, the land use is not disrupted, evaporation is not a factor, and costs are substantially less. Imported water is of similar quality to the existing native groundwater and thus a change in water chemistry is within an acceptable range.

When needed during summer months, during times of drought or emergencies, these stored underground supplies can be easily tapped by reversing the direction of the pump motors on the ASR injection-extraction wells. Several retail water purveyors with groundwater pumping capacity have reduced their groundwater extractions in lieu of using or directly purchasing Calleguas/Metropolitan water, and in return, have transferred previously earned Fox Canyon Groundwater Management Agency (FCGMA) conservation credits to Calleguas for use in the East Las Posas Basin to support the ASR project.

The Port Hueneme Water Agency (PHWA) has a long-term lease for 1850 acre feet of UWCD's annual State Water Project entitlement of 5,000 AF. PHWA obtains this entitlement indirectly from Calleguas via the City of Oxnard pipeline connection to Calleguas. UWCD periodically calls for all or part of its remaining 3150 AF from the State Department of Water Resources, which then delivers water from Pyramid Lake via Piru Creek to UWCD's Lake Piru Reservoir. PHWA and UWCD are the only two county agencies that have utilized the 20,000 AF annual State Water option secured by the Ventura County Watershed Protection District several decades ago. Future water deliveries from this source may not be entirely reliable; however, due to typical over-allocations of State Water Project supplies to other delivery points in California. The Department of Water Resources has historically delivered only 40 to 80 percent of any agency's full entitlement in a given year, and Ventura County should expect shortages even if the full 20,000 AF could be obtained.

When groundwater is pumped at a rate greater than water is recharged to the basin, an overdraft situation is created. The most severe local overdraft tends to occur in areas of heavy agricultural usage. Beneath the Oxnard Plain, the Oxnard and Mugu aquifers are currently still being overdrafted, but at a rate much less than in previous years. This improved overdraft situation has resulted in a reduction from the more than 22 square miles of the Oxnard Plain being intruded by seawater, to a refined figure of only about 12.8 square miles of actual onshore seawater contamination. If the present improvement of overdraft trends continues, it is estimated that the Upper Aquifer System will recover from seawater intrusion by the FCGMA target year of 2010 if recovery continues at its current rate of about 0.25 to 0.50 square miles per year.

This recovery is attributed to the Seawater Intrusion Abatement Program established by the County Water Quality Management (208) Plan. This program involved construction of the Vern Freeman Diversion Structure by UWCD, which spans the Santa Clara River in the vicinity of Saticoy and diverts surface flow into the associated Pumping Trough Pipeline and expanded

Springville Reservoir east of Camarillo Airport forcing back the seawater.

Unlike the Oxnard and Mugu aquifers, there is very little natural or artificial recharge to the Hueneme, Fox Canyon, and Grimes Canyon aquifers; therefore, any amount of use has the potential to result in overdraft. Groundwater supplies in outlying portions of both the East and West Las Posas Basins are expected to be exhausted within the next 30 to 50 years unless artificial recharge efforts to mitigate the situation are continued long-term. Overdraft in these outlying portions has been reduced from a rate of about 10,000 AFY to a more manageable 5,000 AFY, primarily through the management efforts of the FCGMA and the injected or in-lieu imported water delivered by Calleguas.

Total groundwater overdraft countywide has been estimated anywhere between 30,000 AFY and 65,000 AFY depending upon annual rainfall, water management practices and implementation, and efficiency of use (includes crop trends and watering methods).

General Discussion

LAND USE IMPLICATIONS: The areas of the County outside major water district boundaries primarily rely upon groundwater as their water source. There is a real possibility that sufficient water supplies may not be available to serve potential developments that would otherwise by allowed by the General Plan in these areas. The Santa Monica Mountains for example, relies entirely upon groundwater. This groundwater is generally contained only within the few and limited fractures hidden in the underlying bedrock rather than the classic sand/silt/gravel type aquifers, and reserves in this area have never been quantified. Sufficient and sustained long-term water supplies may not be available to serve the maximum level of development that would be allowed by the County General Plan in this area.

Throughout most of the north half of the County, limited water supplies pose a constraint to development. In the Lockwood Valley, sufficient water may not be available to serve the level of development that would otherwise be allowed on existing lots, depending on the amount consumed for irrigation. The General Plan, however, restricts further land divisions in that particular area. In the Cuyama Valley, the issue is more one of sufficient quality of water rather than quantity, so development constraints should be considered in this area as well.

Integration with Other Strategies

When the United States Geological Survey (USGS) began work in Ventura County in the late 1980s at the request of local agencies (UWCD, FCGMA, Calleguas), they proposed several possible groundwater management strategies or options based on findings from their Regional Aquifer System Analysis or RASA study in 1997. The main portion of the RASA report detailed various groundwater management scenarios under computer modeling simulations. The study concluded that the 25 percent scheduled cutbacks in groundwater extractions implemented by the FCGMA was one of many actions needed to help restore groundwater resources and to bring local groundwater basins and aquifers into safe yield situations. The responsibility for groundwater planning, managing pumping allocations, and developing management policies related to groundwater extractions and recharge is shared primarily between the FCGMA and UWCD, with coverage in the Ojai Basin handled by the Ojai Basin Groundwater Management Agency (OBGMA).

There were also some initial findings that chloride concentrations previously measured in some of the producing wells on the Oxnard Plain were simply detecting high chloride waters flowing downward from failed well casings. To ensure monitoring results were accurately depicting saline intrusion, a series of monitoring wells were drilled along the coastal portions of the Oxnard Plain. These multiple-completion wells consist of a single well bore containing several smaller diameter PVC wells completed at varying aquifer depths. These clustered monitoring wells continue to provide discreet depth-dependent data from several aquifers, and form the basis of many of the current monitoring programs.

The development of a specific groundwater management plan by the FCGMA was a direct result of seawater intrusion problems, and since 1987 this plan has helped to set goals and guide FCGMA policies. Several agencies are now responsible for managing water resources in Ventura County. The responsibility for groundwater planning, managing pumping allocations, and developing management policies related to groundwater extractions and recharge is shared primarily between the FCGMA and UWCD.

Most of the major basins within Ventura County are covered by groundwater and surface water monitoring, construction, and water conservation conditions. Although groundwater management and planning functions overlap between the FCGMA and UWCD, the FCGMA focuses on extractions and policy, while UWCD focuses on planning and implementing projects. Calleguas Municipal Water District is responsible for providing State Water to portions of Ventura County and for providing water management strategies to ensure a reliable source of water for its customers. The Ventura County Watershed Protection District is responsible for flood control functions, groundwater/surface water monitoring, and water well permitting. There has been a remarkable amount of cooperation among these agencies in addressing groundwater issues over the last 20-plus years.

In practice, groundwater management functions are performed in some of the following ways:

1) Groundwater levels and groundwater quality sampling and analysis are conducted by UWCD and the Ventura County Watershed Protection District.

2) Groundwater extraction records are collected by FCGMA, OBGMA and UWCD, with each agency maintaining records on extraction allocations and UWCD reporting annually to the State DWR.

3) An annual report on groundwater conditions is prepared by UWCD for areas within UWCD boundaries, and Calleguas prepares reports on groundwater conditions within the West, East, and South Las Posas basins. The Ventura County Watershed Protection District is responsible for all other areas in the county, and reports on various water subjects are generated as needed, or when time, staff availability, and funding permit.

4) The Ventura County Watershed Protection District and FCGMA evaluate various groundwater use plans to help control and enforce basin management objectives, strategies, and policies.

5) UWCD constructs and operates water conservation facilities.

6) The Ventura County Watershed Protection District oversees all well drilling, well destruction, and monitoring well requirements and permitting.

Current groundwater management strategies typically evaluate three main areas of importance for effectiveness: 1) currently implemented management strategies; 2) strategies under development where some action has already been taken to design and implement those strategies; and 3) potential future management strategies. Current strategies were evaluated by measuring their effect on changing groundwater levels and improving groundwater quality. Proposed and future strategies are increasingly being evaluated using the computer modeling techniques such as the Ventura County Regional Groundwater Model (an empirical computer simulation of groundwater flow developed by the UWCD Groundwater Department with USGS Modflow software).

Several management strategies that have been or could be implemented include:

A) Limitation on groundwater extractions
B) Encourage more wastewater reclamation and water conservation
C) Construction/modification restrictions on upper aquifer system water wells
D) A cooperative groundwater monitoring program
E) Individual basin pumping restrictions
F) Implementation of drilling and pumping restrictions
G) Countywide metering of all groundwater extractions
H) Establishment of buffer zones surrounding aquifer outcrop areas
I) Expansion of ASR direct injection projects into new areas
J) Import full allotment of State Water
K) Additional groundwater monitoring
L) Calibration of groundwater extraction meters for accuracy
M) Institute scheduled pumping reductions as needed
N) Expansion of groundwater recharge ponds
O) Pump and treat unused shallow brackish groundwater
P) Shift groundwater pumping to areas of surplus supply
Q) Place limitations of sources of nitrate and other groundwater contaminants
R) Force developers to replace increased water demands as condition of project approval
S) Institute additional conservation measures to save available water
Permanent protection of existing and restoration/creation of additional natural wetlands and floodplain areas to benefit groundwater recharge

The following other water management strategies in this IRWMP that might benefit from implementing groundwater management strategies include:

- Ecosystem restoration
- Environmental and habitat protection and improvement
- Water supply reliability
- Flood management
- Recreation and public access
- Stormwater capture and management
- Water conservation
- Water quality protection and improvement
- Water recycling
- Wetlands enhancement and creation
- Conjunctive use

- Desalination
- Imported water
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Possible Funding Sources

- Local funding (current management strategies are partially funded through joint funding from water districts' general funds, property taxes, groundwater pump charges, customers rate base, and user fees)
- Current projects that are the results of groundwater management planning have been partially funded through a combination of Federal funds (Bureau of Reclamation, special legislation) and State funds (State Water Resources Control Board, Department of Water Resources (Prop 13 grant)).

5.2.6 Imported Water

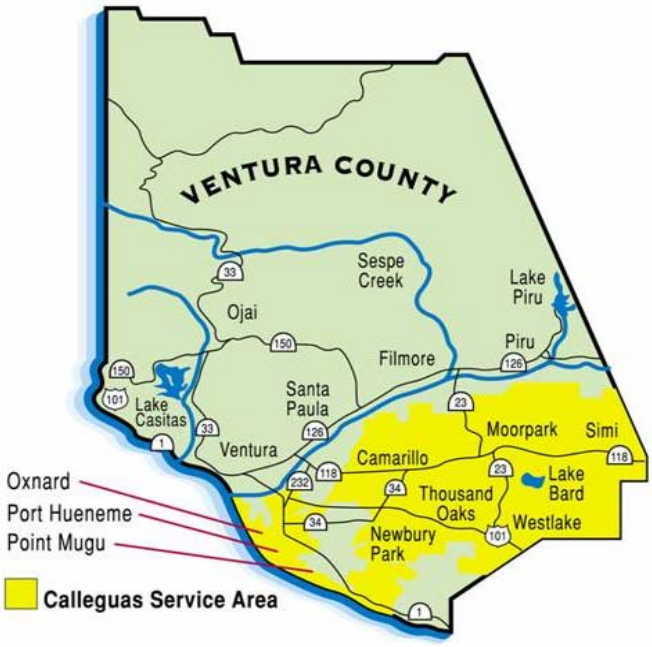
Description

One strategy employed in many parts of California to meet water needs is to bring in, or import, water from other areas. This is commonly referred to as "imported water." The largest source of imported water in California is the State Water Project. For the purposes of the IWRMP, this strategy is being interpreted in two ways. The first is reducing dependence on imported water. The second is increasing use of imported water from new or existing sources or using imported water more efficiently.

Calleguas Municipal Water District

History

A growing population, recurring drought, and overdrafted groundwater basins with poor water quality prompted water officials from east Ventura County to secure supplies elsewhere. In 1953, area residents voted to form the Calleguas Municipal Water District (Calleguas). Calleguas is a public agency established under State law, and was named for the local Watershed within its 350 square mile service area, Calleguas Creek. A map of the Calleguas service area is shown in figure below in.



Seven years later, local voters approved another ballot measure that authorized Calleguas to join the Metropolitan Water District of Southern California (Metropolitan) to gain access to supplies from the Colorado River. Calleguas built the necessary facilities to connect to Metropolitan's

system in Los Angeles County, which included pipelines, a tunnel through the Santa Susana Mountains, and a pump station. Imported water deliveries from the Colorado River began in 1962.

In 1965, Calleguas completed Lake Bard, a surface water reservoir, to store excess water for use to meet peak and emergency demands. Over the years, Calleguas has constructed over 150 miles of large diameter pipeline for wholesale delivery to local cities and water agencies, and ultimately, area residents.

Existing Efforts – Local and Statewide

Calleguas Retail Agencies

Calleguas member purveyors together form a diverse group of water interests, including agriculture, commercial, and residential water users. Some have the ability to utilize local groundwater basins, while others are totally dependent on imported water. They all operate and maintain complex retail water systems. A list of Calleguas' purveyors is shown below.

Calleguas Municipal Water District Purveyors by Region

Region	Purveyors
Conejo Valley	California-American Water Company California Water Service City of Thousand Oaks Newbury Park Academy Water Company Lake Sherwood CSD
Camarillo Area	City of Camarillo Capehart Housing (U.S. Navy) Crestview Mutual Water Company Pleasant Valley Mutual Water Company Camrosa Water District
Moorpark Area	Berylwood Heights Mutual Water Company Butler Ranch Mutual Water Company Ventura County Waterworks District No. 1 Ventura County Waterworks District No. 19 Solano Verde Mutual Water Company Zone Mutual Water Company
Simi Valley Area	Brandeis Mutual Water Company Golden State Water Company City of Simi Valley (Ventura County Waterworks District No. 8)
Oak Park	Oak Park Water Service
Oxnard	City of Oxnard
Port Hueneme and Navy Base	Port Hueneme Water Agency

State Project Water

Following completion of the State Water Project in the early 1970s, Calleguas began to serve water from Northern California to its east County service area. Imported water drawn from Castaic Lake is treated utilizing state-of-art technology by Metropolitan at its Jensen Treatment Facility in Granada Hills (see Figure 5-2 below). As a member agency of Metropolitan, Calleguas utilizes State Water Project entitlements held by Metropolitan.

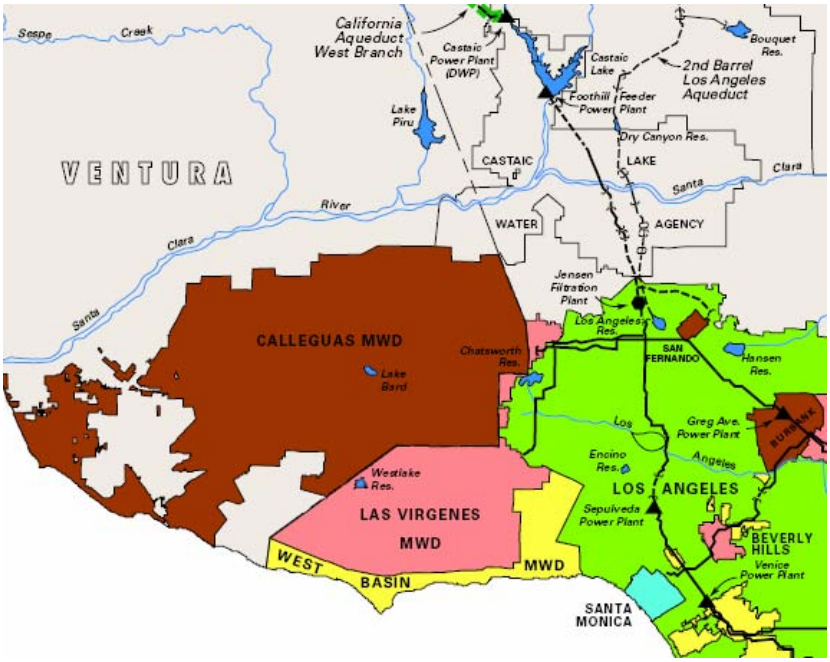


Figure 5-2
Areas Utilizing Treated Water from Jensen Filtration Plant

Western Ventura County Entitlement to State Water (SWP)

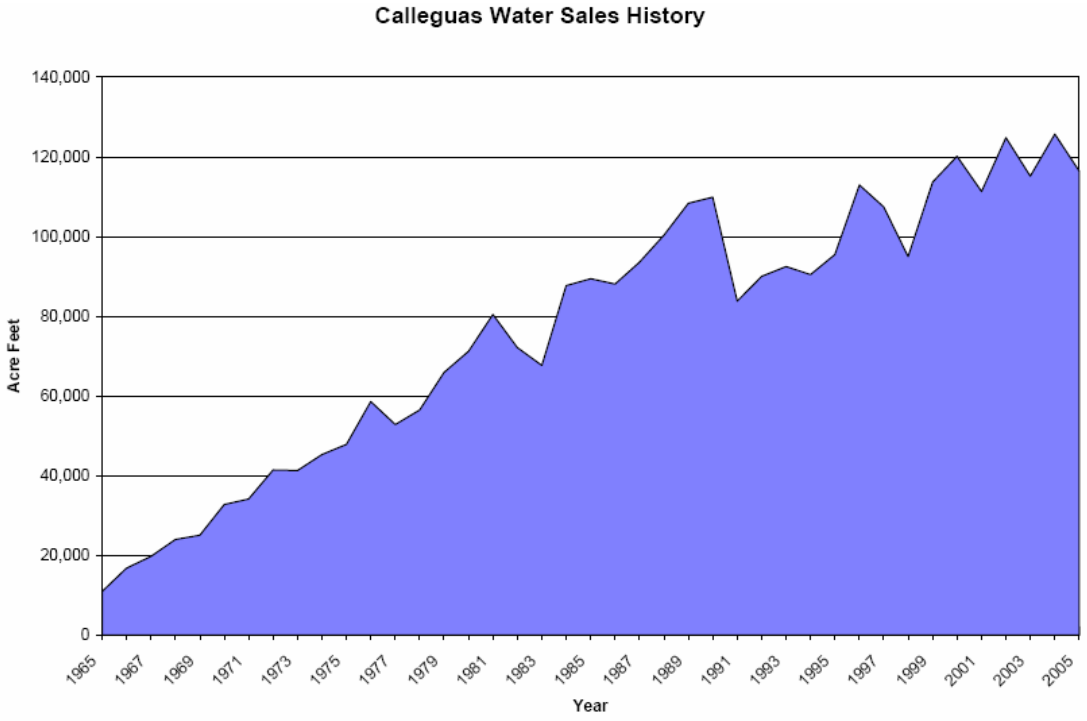
In 1964, Ventura County Flood Control District contracted with the State of California for future delivery of up to 20,000 AFY of SWP water to provide for residents in the western portion of Ventura County. It later transferred that entitlement to United Water Conservation District (5000 afy), Casitas Municipal Water District (5000 afy), and the City of Ventura (10,000 afy). This obligation extends to the year 2038. With no viable infrastructure in place to convey State Project Water to the City of Ventura and Casitas MWD, they have not received delivery of their portions of the allotment. It is not certain if or when facilities will be constructed to transport SWP water to these agencies.

United WCD is the only agency of the three that has received any of its SWP water. To deliver SWP water to United WCD, the California Department of Water Resources releases the water from Pyramid Lake, where it flows down Piru Creek into Lake Piru. The water can then be released downstream as part of the annual water conservation release from Lake Piru. Some of that water will arrive at the Freeman Diversion, where it can be recharged into the Oxnard Plain aquifers,

contributing to the Oxnard/Hueneme supply. In 2004 United WCD purchased some of the City of Ventura's annual entitlement to SWP water, at which time approximately 2000 AF was delivered into Lake Piru. Purchase of SWP is used for the benefit of the aquifer system, on behalf of all pumpers.

The City, Casitas, and United (referred to as the Joint Agencies) pay annual entitlement fees to the State which cover construction costs for SWP facilities and administration to deliver allotments of water throughout the State.

The graph below shows the Region's demands for imported water. Through its retail purveyors, Calleguas now supplies water to 550,000 people, four times the service area's initial population. Three-quarters of Ventura County's residents now depend on imported water for all or part of their water supply.



Wastewater Effluent Dominated Watersheds

Prior to the introduction of imported water to Ventura County, flows in most of the creeks, streams, arroyos and the Santa Clara River were intermittent, and dominated by storm events. The local waterscape has changed tremendously. Today, those flows are continuous and largely effluent dominated from wastewater treatment plants. In the eastern part of Ventura County, the effluent originates from imported water. While this effluent is generally better quality than local groundwater and provides dilution in impaired surface waters, imported water has introduced more salt to the region causing a new water quality concern. Regulatory compliance for salts and other constituents is a significant challenge for wastewater dischargers, local water purveyors, and agriculture as the Region seeks to balance its water supply and quality goals.

In the western portion of the county, in the Ventura River system, the tertiary treated effluent significantly contributes to the spawning and rearing habitat of the southern California steelhead trout and other species of special concern.

Imported Water Quality

Water supplies from the State Water Project are of high quality and generally superior to groundwater from most basins in the Region. The main constituents of concern in Ventura County are Nitrates, Total Dissolved Solids (TDS), and Chloride. Nitrates are virtually non-existent in imported water. The Figure below shows a history of TDS and Chloride in imported water conveyed to Ventura County.

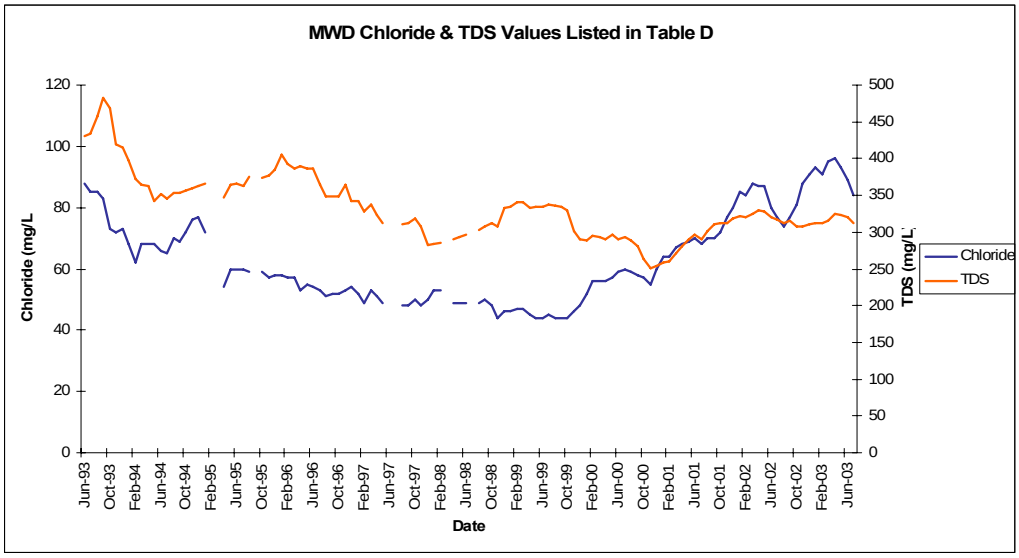


Figure 5-3 – History of Chloride Levels in Sate Project Water

Chloride levels in State Project Water are well below drinking water standards; however, increasing Chloride levels have posed a problem for growers in the Region that farm certain salt-sensitive crops, such as strawberries and avocados.

Regulatory Compliance

Regulators are considering establishing Chloride limits for wastewater dischargers at levels between 100 and 150 milligrams per liter (mg/l). While imported water has been below those levels, it should be kept in mind, once this water is served to residents and businesses within the region, wastewater effluent will actually exceed those levels. Methods to control Chloride and other salt levels range in cost and complexity from moderate to prohibitively expensive. However, source water protection programs that reduce Chlorides and other salts in the imported water supply are the best way to solve this problem.

Benefits of Implementation

Imported State Water has helped local water agencies meet growing demands for water, and also improve water quality in the Region.

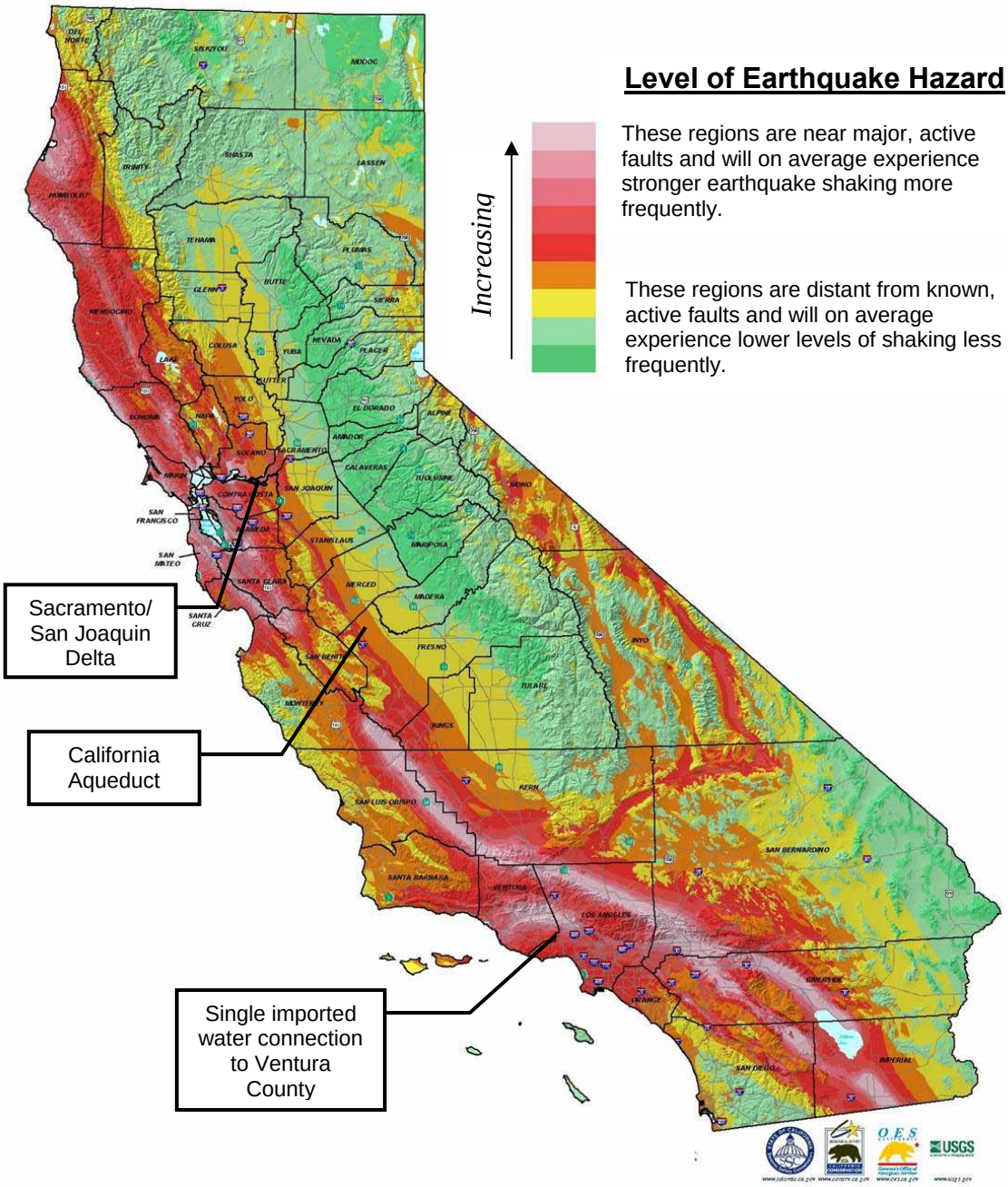
Constraints to Implementation

The primary constraints on the ability to import additional supplies are the limits of the contract with the State Water Project which define the maximum amount of water available, and the limits of the State Water Project itself, which is over-subscribed. In the western portion of the County, importation of the entitlement to 20,000 AFY is constrained by the cost of constructing facilities. Studies have shown that the cost of a pipeline to import the water would be approximately $150 million.

Imported Water Supply Vulnerability

Ventura County's imported water supply is at risk of interruption not only from prolonged droughts but also from seismic events. Moderate earthquakes will cause significant damage to conveyance infrastructure. As shown in the map below, seismic risk is not confined to Southern California.

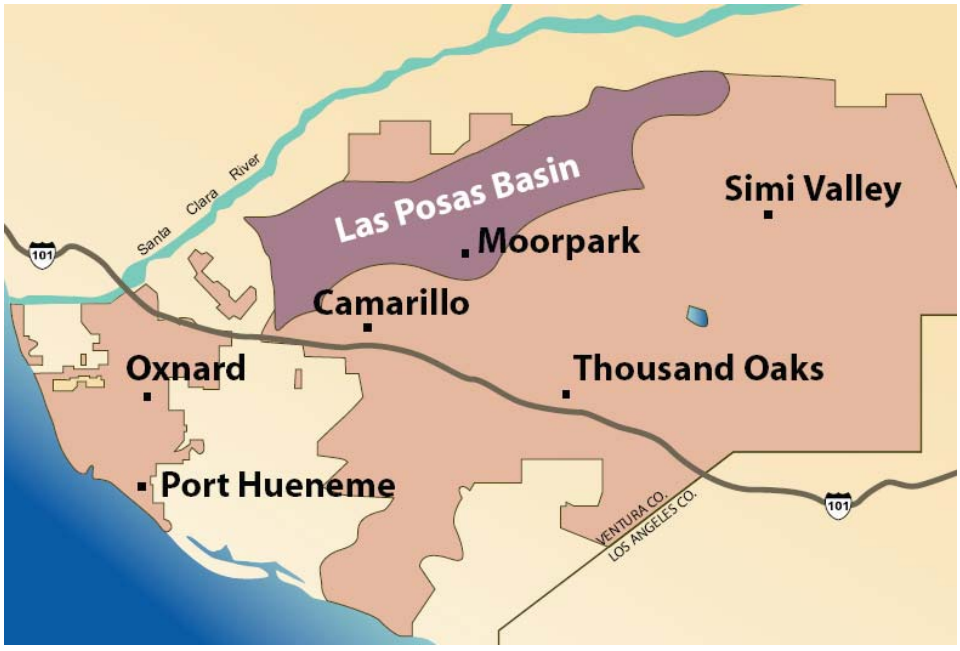
Earthquake Shaking Potential for California
Spring, 2003



The pipelines, aqueducts and pump stations supplying imported water to Ventura County are in some of the most active earthquake areas in the State. The Region will face serious water shortages if an earthquake occurs near the Sacramento/San Joaquin Delta causing levee failure. Winter storms in 2005 already caused breaches in the delicate levee system. An earthquake in Central California will threaten the California aqueduct. An earthquake in Los Angeles County will also cut off supplies of imported water, as was experienced in the Northridge earthquake of 1994.

Imported Water Storage

Lake Bard holds roughly 10,000 AF of water, enough to provide 30 days of emergency supply but not enough to withstand an extended emergency such as a major earthquake, particularly during summer months when the lake helps to supply peak demands. In order to minimize this risk, Calleguas began to develop a large scale groundwater Aquifer Storage and Recovery (ASR) project in 1989. In 1992, the Fox Canyon Groundwater Management Agency formally approved a program which allowed for storage and recovery of up to 300,000 AF of water in the Las Posas groundwater basin near the City of Moorpark (shown below). Major facilities were completed in 2004. To date, over 60,000 acre feet of water has been stored underground for emergencies. The Las Posas project also allows for greater conjunctive use of imported and groundwater supplies, by storing water in the winter months when it is available, so that it can then be produced during the dry summer months when supplies are limited.



Imported Water Storage: Las Posas Basin

Conjunctive use as an effective water management strategy will be discussed in a later chapter. Development of the local water supply enhancement projects included in this Plan will enable

Ventura County to reduce its dependence on imported deliveries from Northern California. This will also obviate the need for additional imported water infrastructure.

Related Documents and Websites

- California Dept. of Water Resources. *State Water Project Reliability Report,* November 2005
- Information regarding urban water management plans:

  http://www.owue.water.ca.gov/urbanplan/index.cfm
- Metropolitan Water District of Southern California's IRP:
  http://www.mwdh2o.com/mwdh2o/pages/yourwater/irp/integrated01.html
- Metropolitan Water District of Southern California's Regional UWMP:
  http://www.mwdh2o.com/mwdh2o/pages/pdf/ywater/rump_2005.pdf
- California Bay-Delta Program, Record of Decision:
  http://calwater.ca.gov/Archives/GeneralArchive/RecordOfDecision2000.shtml
- Calleguas Municipal Water District: Urban Water Management Plan
  http://www.calleguas.com
- California Water Plan Update 2005 http://www.waterplan.water.ca.gov/
- Flood and Earthquake Risk Information for State Water Project:

  http://www.dfm.water.ca.gov/

Recommendations for Future Projects or Action

Calleguas MWD

A priority of the Calleguas Municipal Water District is to minimize capital facilities projects related to importation of State Water in favor of local reliability projects (i.e. brackish groundwater treatment, recycling, conservation, etc.).

A central feature of the Adopted Calleguas Creek Watershed Management Plan is a regional salinity management project that will facilitate the development of local water supplies by removing salts from groundwater and conveying them through a regional Brine Line to other areas of the Watershed. The pipeline will also enable water recycling projects in the Watershed, ultimately producing more than 50,000 acre feet of new water annually -- nearly half the quantity of Calleguas' annual imports.

Each of these types of projects (recycling, conservation, brackish water treatment) are discussed in more detail in the remainder of this Section 5. Individual projects to be implemented are discussed in Section 6.

Entitlement Held in Western Portion of County

A priority of the United WCD is to maximize the amount of SWP that is imported into the Santa Clara River Watershed, using Piru Creek and Lake Piru as a conduit. A portion of the City of Ventura's and the Casitas MWD's SWP entitlements could be purchased to provide additional supplies.

Integration with Other Strategies

- Water supply reliability
- Groundwater management
- Recreation and public access
- Water quality protection and improvement
- Water recycling
- Conjunctive use
- Desalination
- Land use planning
- Surface storage
- Watershed planning
- Water transfers

Possible Funding Sources

Funding sources for projects which reduce the dependence of local agencies on State Water are discussed in relation to other water management strategies covered in this Section.

5.2.7 Land Use Planning

Description

Land Use: Land Use regulations and policies such as general plans, zoning ordinances, California Environmental Quality Act (CEQA) compliance, and permit conditions can be valuable policy and implementation tools for effective water management. Land use practices can either discourage or exacerbate water supply and quality problems or can proactively promote effective and sustainable water management practices. Severe droughts and water shortages in the past resulted in water saving measures adopted by most California jurisdictions. Some examples include a change in the building code to require 1.6 gallon low-flow toilets, standards for gray water use, and water efficient landscape requirements for discretionary projects. Land use measures can also aid water quality, flood control, habitat protection and other resource management strategies if incorporated into the land use planning process.

Strategy: Land use planning as a strategy for the purposes of this IRWM plan refers to actions which can be taken by agencies with land use decision-making authority (i.e. Cities, the County) to further the objectives set out in the Plan to better manage and protect local water and related environmental resources. Land use strategies can include long-range planning goals, objectives, general plan policies, ordinances, regulations, mitigation measures/funds, project conditions of development, guidelines, community and project design, incentives, penalties, and education/outreach programs which result in positive impacts to local water resources, water quality, habitats and ecosystems.

Traditionally, Cities and Counties have the responsibility for land use planning, and some local jurisdictions have employed effective land use tools/programs described above. Other jurisdictions have considered these tools and are in a position to implement them.

Cities and Counties have the authority to issue some form of approval or entitlement for most development projects, be they private projects or public facilities. Most jurisdictions require the project developers to meet or address conditions of approval, design guidelines, resource use limitations, or some combination of the above. As projects are reviewed, water management strategies may be employed to assist in an overall positive impact on water resources. Through implementation of this IRWMP and other local planning efforts, local planning agencies will be provided with a menu of possible tools and programs for their use in reviewing projects and minimizing the impact of development on local water and environmental resources.

Benefits of Implementation

The primary benefit of employing land use planning as a strategy is to better manage and protect local water supplies, Programs are available to: assist in conserving water supplies, be they imported, surface, ground, or recycled water; improve water quality; reduce flooding; restore habitats and ecosystems; and provide recreational, educational, and access opportunities to the public. In short, land use planning strategies can assist in achieving all overall Plan objectives, and many of the specific tasks and strategies associated with the objectives.

Existing Efforts

Aside from the land use planning authority conferred to Cities and Counties via police power and State Government Code and Resources Code requirements, many jurisdictions have created tools within their authority to positively affect water management.

The County Planning Department will develop an inventory of local land use policies related to water resources currently employed in the County. This project will be coordinated through the City/County Planning Association which meets regularly and will include input from all of the planning directors of the cities and the County. Additional land use policies/practices will be gathered from other jurisdictions across the State as well. Once complete, the information will be disseminated to all planning jurisdictions in the region to help guide implementation of policies that provide water management benefits.

Local Land Use Tools: As a starting point for developing the menu of choices for available land use policies, the following examples have or are being employed in the Ventura County Region: (This is a very narrow set of examples from a wide number and variety of tools/programs available.)

- General Plan Policies applicable to development projects:
  - *"New [water] wells in the Oxnard Plain Pressure Basin shall not be allowed if they would increase seawater intrusion…"*
  - *"The City shall continue and enhance its voluntary water conservation program, including the mandatory installation of ultra low-flush toilets and reduced-flow shower heads and faucets in new development."*
  - *"Landscape Plans for discretionary development shall incorporate water conservation measures…"*
  - *"Discretionary development shall be conditioned to incorporate water conservation techniques and the use of drought-resistant native plants…"*
  - *"The California Department of Fish and Game, the U.S. Fish and Wildlife Service, National Audubon Society and the California Native Plant Society shall be consulted when discretionary development may affect significant biological resources. …"*
  - *"Buffer barrancas and creeks that retain natural soil slopes from development with a minimum of 50 feet of natural existing or restored vegetation."*
  - *"Prohibit placement of material in watercourses other than native plants and required flood control structures, and remove debris periodically."*

- Development-Related Guidelines
  - *Water-Efficient Model Home Requirements*
    - *"Each model home in the complex, including the low-water use models, shall be equipped with a water meter to generate records on how much water the landscape uses …"*
  - *Landscape Approval/Installation Verification*
    - *"Maintenance Program: Landscapes of residential common areas and commercial and industrial projects shall be carefully and competently maintained to ensure water efficiency and high quality appearance."*
- Other Plan Policies
  - Ventura County Water Management Plan

        - *"Encourage tiered rate structures and water allocations to limit water use by providing an economic incentive to use water efficiently."*
        - *"Defer installation of required landscape during drought conditions."*
    - Flood Mitigation plan
        - *"Maintain flood control and storm drains, in accordance with habitat preservation policies, through periodic dredging, repair, de-silting, and clearing to prevent any loss in their effective use."*
- CEQA Review Requirements
    - Groundwater Quantity
        - *"Any land use that will directly or indirectly decrease, either individually or cumulatively, the net quantity of groundwater in a basin that is overdrafted, shall be considered to have a potentially significant impact."*
    - Surface Water Quality
        - *"For proposed land uses where the resulting surface water quality impacts are known by previous data at other sites or on-site data, they should be compared with the objectives for groundwaters contained in the most recently adopted 4A, 3 or 5D Plans."*

Constraints to Implementation

There is no foreseen constraint to implementation of an overall land use planning approach. However, implementation of some specific land use policies or programs (e.g. Watercourse set-back requirements in new developments along waterways) by individual jurisdictions may present challenges for political, technical, or budgetary reasons. This will vary from one community to another depending on the vision of the land use planning agency, the elected officials and its community members.

Related Documents and Websites

Resources which discuss the wide variety of land use policies related to water management are numerous and diverse. The listing provided is primarily focuses on documents, as websites listings are limited.

Websites:

- Watersheds | Water | US EPA - www.epa.gov/OWOW/watershed/index.html
- US EPA Office of Wastewater Management - www.epa.gov/owm/
- Northern California Water Association - www.norcalwater.org/watermgmt/
- ListWaterQualityMonitoringProgramx www.sfei.org/camp/servlet/ListPgms?which=byOrg

Documents:

- Cities'/County General Plans/CEQA Review Documents/Zoning Ordinances/Landscape and Irrigation Guidelines
- Urban Water Management Plans
- 1994 Water Management Plan
- California Water Plan – Bulletin 160-05
- Initial Study Assessment Guidelines (Environmental Review)
- Flood Mitigation Plan for Ventura County

Recommended Future Projects or Actions

As mentioned above, effective land use planning tools and strategies can have a positive role in water management. The following list of potential recommended projects/actions has been derived from a matrix of types of projects and programs (See Table 6-1 in Section 6) .

Interagency and Land Use Planning Programs

- Updates and modifications to land use policies (i.e. general plan, specific plans)
- Watercourse setback ordinances or policies (for urban and agricultural uses)
- Riparian corridor buffers
- Reduce impervious surface areas in new development
- Floodplain development restrictions
- Sensitive biological areas overlay zones
- Evaluation of water-related impacts during development review
- Evaluate process for reconstruction following emergencies (floods, landslides)
- Create incentives and/or eliminate disincentives for land owners to protect and restore habitats and ecosystems on their property

Relationship to Plan Objectives

Implementation of the tools listed above have the potential to impact the following objectives in the IRWMP (See Section 4):

1. Reduce dependence on imported water and protect, conserve and augment water supplies

√ Better understand local watersheds by gathering more data and information regarding water supply (capacity, safe yield, flows) and water demand.
√ Ensure secure water supplies by helping local water purveying districts address the impacts of future droughts and other water shortages.
√ Document and update the efforts being made by local water districts, environmental interest groups and other agencies to improve the management of local water supplies, and to identify ways to build on these efforts for greater future success.
√ Development of watershed management plans, where applicable, to enhance understanding of watershed characteristics and appropriate actions.

2. Protect and improve water quality

√ Identify and evaluate the opportunities to improve water quality and to implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include increased water quality improvement, land use controls, construction of facilities and other water management techniques.

3. Protect people, property and the environment from adverse flooding impacts

√ Document and update the efforts being made by local water districts, environmental interest groups and other agencies to prevent and/or mitigate flooding and identify ways to build on these efforts for greater future success.

√ Develop and implement land use measures that will help mitigate the impacts of new development in floodplains.

4. Protect and restore habitat and ecosystems in watersheds

√ Integrate and coordinate current and future efforts of a diverse number of agencies engaged in water management and ecosystem restoration through a joint process of setting goals, evaluating data and developing future actions/projects.

5. Provide water-related recreational, public access and educational opportunities

√ Enhance the public's knowledge and awareness of water issues and involve them in the integrated regional water management process.
√ Identify opportunities to provide public access and recreation when implementing new projects and programs.

Integration with Other Strategies

Properly implemented land use planning tools and programs, including review of new development projects and long-range planning documents, can positively affect virtually any of the other Water Management Strategies contained in this Plan. They are listed below:

- Ecosystem Restoration
- Environmental and Habitat Protection and Improvement
- Water Supply Reliability
- Flood Management
- Groundwater Management
- Recreation and Public Access
- Stormwater Capture and Management
- Water Quality Protection and Improvement
- Water Recycling
- Wetlands Enhancement and Creation
- Conjunctive Use
- Desalination
- Imported Water
- NPS Pollution Control
- Surface Storage
- Watershed Planning
- Water Conservation
- Water and Wastewater Treatment
- Water Transfers

Possible Funding Sources

- Local funding (e.g., joint funding from water districts' general funds, user fees or surcharges, City/County General Fund via Budget Request)
- State and Federal grants (DWR, USBR, EPA, SWRCB/RWQCB)

- Upcoming Proposition 84 Planning Grant, if passed by the voters in November 2006

5.2.8 Nonpoint Source Pollution Control

Description

Nonpoint source pollution (NPS) is defined as anything that is not categorized as a point source in the Federal Clean Water Act. Point sources are defined as discharges from "any discernible, confined, and discrete conveyance," such as a pipe, but "does not include return flows from agriculture or agricultural stormwater runoff."(CFR 122.2) Primarily, NPS pollution occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, picks up pollutants, and deposits them into rivers, lakes, and coastal waters or introduces them into groundwater. The runoff can pick up both naturally-occurring and human-deposited pollutants and transport them to waterbodies. Additionally, NPS pollution can occur from sources directly leaching or discharged into ground and surface waters and from groundwaters transporting pollutants to surface waters. NPS pollution contributes to many water quality problems and is challenging to control because of its dispersed nature, numerous sources, and transport of naturally occurring pollutants to waterbodies. NPS pollution is widespread because it can occur any time activities disturb the land or water.

Agriculture, forestry, grazing, septic systems, recreational boating, groundwater discharges and undeveloped land are all potential sources of NPS pollution. NPS pollution also includes adverse changes to the vegetation, shape, and flow of streams and other aquatic systems causing physical changes to stream channels and habitat degradation.

Nonpoint source pollution has been identified as a source contributing to surface water impairments for nutrients, pesticides, metals, bacteria, and salts throughout Ventura County (303d list). In Ventura County, agriculture and undeveloped land comprise over 50 percent of the land area. Consequently, pollutants discharged from these areas as non-point pollution can be a significant source to local waterbodies. Additionally, seawater intrusion, individual sewage disposal systems (septic tanks), forestry and naturally occurring contaminants may be sources of non-point pollution in Ventura County.

Excerpt from the California Water Plan Update 2005:

Pollution prevention is the most effective mechanism for addressing NPS pollution. Pollution prevention can improve water quality for all beneficial uses by protecting water at its source, reducing the need and cost for other water management and treatment options. By preventing pollution throughout a watershed, water supplies can be used, and re-used, for a broader number and type of downstream water uses. Improving water quality by protecting source water is consistent with a watershed management approach to water resources problems. In addition, the legal doctrine of "public trust" demands that the State protect certain natural resources for the benefit of the public, including uses such as fishing, protection of fish and wildlife, and commerce, all of which are affected by pollution. (Source: California Water Plan Update 2005).

Nonpoint Source Pollution Sources

Agriculture

Agricultural practices can result in significant discharge of both human-deposited and natural pollutants. In Ventura County, agriculture has been identified as a significant source of nutrients and pesticides to surface waters and a contributing source of salts, metals, and bacteria during the development of Total Maximum Daily Loads (TMDLs) for the Calleguas Creek and Santa Clara River watersheds. Fertilizers and pesticides applied to crops can be transported to surface and ground waters by irrigation and precipitation runoff from fields and orchards. These discharges can contribute to toxicity in surface waters and impairment of water supplies in groundwaters. In addition, livestock (eg. cattle, horses) waste is a significant source of nutrients in the Ventura River Watershed.

Forestry

Sources of NPS pollution associated with forestry activities include removal of streamside vegetation, fire management, road construction and use, and mechanical preparation for the planting of trees. Road construction and road use are the primary sources of NPS pollution on forested lands, contributing up to 90 percent of the total sediment from forestry operations.

Harvesting trees in the area beside a stream can affect water quality by reducing the streambank shading that regulates water temperature and by removing vegetation that stabilizes the streambanks. These changes can harm aquatic life by limiting sources of food, shade, and shelter.

Hydromodification

Hydromodification is the alteration of stream and river channels, installation of dams and water impoundments, and streambank and shoreline erosion. Channelization and channel modification activities diminish the quality of aquatic habitats and streamside habitats. It can result in changes to water temperatures and sediment transport patterns, as well as the rate of erosion. Hardening of the banks with shoreline protection or armor can accelerate the movement of surface water and pollutants from upstream, causing degraded water quality.

Dams can adversely impact the hydrology and surface water quality and riparian habitat in rivers and streams where they are located. Impacts to surface water quality and riparian habitats can result from the silting, construction and operation of dams. Dams can reduce downstream flows affecting water quality and habitat. Dam construction can remove vegetation and cause increased sedimentation and turbidity. Increased erosion can occur after installation of a dam, creating increased sediment loads and impacting aquatic habitats.

Streambank and shoreline erosion is a natural process that can be both beneficial and detrimental. Some erosion is necessary to provide sediment for beach replenishment, to provide point bars and channel deposits in rivers, and for substrate in tidal flats in wetlands. However, excessively high erosion can cause sediment to smother aquatic vegetation, cover shellfish beds and tidal flats, fill in riffle pools, and contribute to increased turbidity and nutrient loading.

Marinas and Recreational Boating

Because marinas are located at the water's edge, pollutants generated by marinas and boats are less likely to be buffered or filtered by natural processes. When boating and related activities are poorly planned or managed, they may threaten the health of aquatic systems and pose other environmental hazards. USEPA (1993) identified the following sources of pollution associated with marinas and boating activities:

- Poorly flushed waterways
- Pollutants discharged from boats
- Pollutants carried in stormwater runoff
- Physical alteration of wetlands and of shellfish and other benthic communities during construction of marinas, ramps and related facilities
- Pollutants generated from boat maintenance activities on land and in the water

Benefits of Implementation

The overall goal of NPS Control is the prevention or control of NPS pollution such that none of the beneficial uses of water is impaired by that pollution. The restoration of native fish populations and the aquatic systems that support them would provide substantial environmental, cultural and economic benefits.

Successful implementation of a NPS Program largely depends on two factors: the ability of Federal, State and local agencies to use their administrative authorities and limited resources in creative and efficient ways, and the willingness of dischargers to implement Best Management Practices (BMPs) and other strategies that effectively prevent or control NPS discharges.

Existing Efforts

Legal Framework

The Porter-Cologne Act is the principal law governing water quality control in California. It establishes a comprehensive program to protect water quality and the beneficial uses of waters of the State. The Porter-Cologne Act applies broadly to all State waters, including surface waters, wetlands, and groundwater; it covers waste discharges to land as well as to surface and groundwater, and applies to both point and nonpoint sources of pollution. California's legal framework for implementing the Nonpoint Source Program is based on two chief Federal laws – the Clean Water Act (CWA) and Coastal Zone Management Act (CZMA), and State and local law.

The U.S. Environmental Protection Agency (USEPA), California State Water Resources Control Board (SWRCB), California Coastal Commission (CCC) and other State agencies have identified measures to address NPS pollution of State waters. The following measures are being implemented in various ways throughout Ventura County:

Development of Watershed Management Plans

The resource inventory and information analysis component provides the basis for a watershed management plan, which is a comprehensive approach to addressing the needs of a watershed, including land use, urban runoff control practices, pollutant reduction strategies and pollution

prevention techniques. For a watershed management plan to be effective it should include measurable goals, describe desired outcomes and methods for achieving identified goals.

Recommendations:

Continue to promote the development and implementation of Watershed Management Plans including:

- Ventura River Watershed Protection Project
- Santa Clara River Watershed Management Plan
- Calleguas Creek Watershed Management Plan – ongoing updates to existing CCWMP

Agriculture

Regional Water Quality Control Board Agricultural Waiver Program

Water quality data indicate water quality problems in irrigated agricultural areas throughout the Region. Many of the Region's impaired water bodies (with subsequent Total Maximum Daily Loads determinations) are for waterbodies running through agricultural lands. In addition, many groundwater basins underlying agricultural areas show levels of nitrate that exceed drinking water standards. In response the State Legislature amended California Water Code section 13269, causing all waivers of Waste Discharge Requirements that existed on January 1, 2000, to expire on January 1, 2003.

On November 3, 2005 the Los Angeles Regional Water Quality Control Board adopted a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region (Order No. R4-2005-0080). The intent of this program is to attain water quality objectives in waters of the State by regulating discharges from irrigated lands in the Los Angeles region (i.e. the coastal watershed of Ventura and Los Angeles counties). Owners and operators of irrigated lands that drain into the waters of the State must be covered by the conditional waiver, or submit a report of waste discharge and apply for a discharge permit. Dischargers are allowed to either form groups, or apply individually for coverage under the waiver. In order to comply with the conditions of the waiver, dischargers were required to submit a Notice of Intent, Monitoring and Reporting Program Plan and a Quality Assurance Project Plan to the Los Angeles Regional Water Quality Control Board by August 3, 2006. All farmers are expected to complete a certain amount of farm water quality education.

On August 3, 2006, a Notice of Intent (NOI) was submitted to the Los Angeles Regional Water Quality Control Board for an agricultural group that represents approximately 70 percent of the irrigated agriculture in Ventura County. The NOI included a comprehensive monitoring and reporting program to identify areas in Ventura County where agricultural discharges are causing or contributing to exceedances of water quality objectives. In areas where water quality objectives are exceeded or TMDL implementation requires them, farm water quality management plans will be developed to address the pollutant of concern.

The Conditional Waiver will be the mechanism through which TMDLs and Best Management Practices (BMPs) for agriculture will be implemented. The BMPs developed under this program will provide an integrated approach to addressing pesticide use and management, water conservation and efficiency, pollutant runoff reduction, and sediment transport from agricultural fields.

Recommendations:

- Implement the VCAILG discharger group's programs
- Continue to support the Countywide Water Conservation Program efforts to educate the agricultural sector of the County through current programs, and new programs should be encouraged
- Continue to support the University of California Cooperative Extension Program and Resource Conservation District efforts to educate agricultural water users countywide
- Support the development of the agricultural education programs required under the Conditional Waiver.
- Support research to identify and evaluate effective BMPs for agriculture and encourage IPM and pesticide use reduction programs.
- Support irrigation and water efficiency programs including:
    - Nature Conservancy nonpoint source pollution agriculture runoff management
    - Casitas Water District – Agricultural Assistance Project
    - Promote Best Management Practices (BMPs) for water conservation and improved agricultural practices; the County should investigate methods of ensuring that such BMPs are implemented.
- Support programs that promote good grazing and range land management practices including:
    - Education and outreach to landowners
    - Encourage and promote the enhancement of activities conducted by the Resource Conservation District's Soil Conservation Service Division.

Land and/or Development Rights Acquisition

One effective means to preserve land necessary for the protection of the environmental integrity of an area is to acquire it outright or to limit development rights. Land conservation includes more than simply preserving land in its current state. It also requires taking responsibility for restoration of areas of the property that might already be impacted by Nonpoint source pollution. Stewardship activities for land conservation may involve: resource monitoring; general maintenance; control of exotic species; and installation of structural runoff management practices. Additionally, land conservation can be used as an effective means of creating a "buffer" between potential Nonpoint sources of pollution and the surface water that can trap and treat pollutants before they reach the stream.

Recommendations:

Support the efforts of local land conservancies to either purchase or establish conservation easements and/or acquire land for the purpose of improving water quality

Individual Sewage Disposal Systems/Septic Tank Maintenance Program

Simple septic tank on-site wastewater treatment is not always appropriate. Groundwater and sensitive surface water habitats can be impacted by inadequately treated effluent. Generally, simple septic treatment doesn't remove nutrients and in some cases may not remove pathogens. In areas where groundwater provides the local drinking water source, the use of individual sewage disposal systems (septics) have become a groundwater quality issue.

Recommendations:

- Update County sewer policy and ordinances, to include Assembly Bill 885 and any new Onsite Wastewater regulations that result from that legislation
- Treatment Systems regulations promulgated by the State Water Resources Control Board, including minimum distance to groundwater, septic tank inspections and monitoring
- Identify new and continuing areas of concern where septic systems directly or indirectly contribute to groundwater contamination.
- Installation of all new on site septic system shall meet all applicable State and County regulations, including new AB 885 regulations
- Continue to monitor areas where septic system problems exist and encourage public sewering wherever feasible
- Do not permit inadequate individual disposal systems. Require the appropriate on-site treatment for the area/situation. And require the appropriate level of maintenance selected from the US Environmental Protection Agency's *Voluntary Management Guidelines and Management Handbook for Decentralized Systems* and California regulations.
- Adjust lot size and shape dependant on the capabilities of the on-site collection and treatment system to remove nutrients, provide irrigation water, and achieve economy of scale for tight clusters of homes surrounded by areas of un-fenced open space

Marinas and Recreational Boating

The primary focus of this program has been to educate the public about NPS pollution management measures and the importance of using environmentally sound practices when conducting in-water hull cleaning activities. The goals of this project are to: 1) raise awareness among the hull cleaners and marina operators regarding the effects that certain boating activities have on water quality; 2) promote the implementation of boat-related best management practices (BMPs) and less-toxic products; and 3) promote to the boating community "green" businesses which use BMPs.

Recommendations:

Support the implementation of boat-related and boat cleaning BMPs, including:

- The In-Water Hull Cleaners Certification Program

Hydro-modification

(See Stormwater Capture and Management sub-section)

Constraints to Implementation

Factors affecting the implementation of countywide urban, agricultural and business/industrial programs include funding, difficulty in reaching the non-English speaking population, resistance to change, and the inability to accurately measure program effectiveness.

Limited Funding

Limited funding and therefore, limited staff, prohibits these programs from realizing their full potential. Demands on the existing programs have increased dramatically, due to increasingly stringent regulatory requirements for dischargers Staff has been able to respond to demands and implement programs but could create additional programs to assist in water awareness education if additional funding were available.

Language Barriers

Language barriers might be an obstacle that should be evaluated in implementing an effective public education program to the non-English speaking population of the Region. Since 1990 several water brochures have been printed in Spanish and distributed to various communities throughout Ventura County. Education of the general non-English speaking population is not believed to be a significant problem. However, due to the high turnover rate of the large, Spanish speaking farmworker population, education of farmworkers has become a concern. Presentations to growers are effective; however, information may be lost in the translation from grower to farmworker due to language and cultural barriers.

Public Education/Resistance to Change

BMP implementation can be accomplished through simple behavioral changes. Public education and outreach through various programs has the ability to change perceptions, practices and behaviors.

Recommended Future Projects or Actions

- Ventura Streams Baseline Assessment and Habitat Enhancement Evaluation
- Nutrient Management projects in the Ventura River
- Nature Conservancy Watershed Conservation Study
- Ventura Coastal Watershed Acquisition
- Nature Conservancy Watershed Conservation Study
- Casitas Municipal Water District – Interpretive Center
- City of Camarillo Urban Pesticide Education & Buyback Program
- Ormond Beach Wetlands Restoration Plan
- Ojai Valley Land Conservancy
- Watershed Protection District Study of Impacts to Ventura River & Santa Clara River Estuaries
- Formation of a Ventura River Watershed Council
- Additional monitoring stations on the Santa Clara River
- Database/GIS link
- Database export features for standardized reporting
- Additional water quality monitoring of Matilija Creek
- Ventura River Watershed Characterization Model and Plan
- Arundo Removal Water Supply and Habitat Restoration Project
- Ojai Basin Groundwater Monitoring
- Matilija Dam Arundo Removal, Water Supply, and Habitat Restoration Project
- Matilija Dam Ecosystem Restoration Project
- Ventura River Watershed Protection Data Gap Analysis
- Resident Species Study, Santa Clara Estuary

Wetlands are vital to the survival of aquatic and terrestrial wildlife and plants. They play an important role in filtering out pollutants, preventing soil erosion, providing flow control, surface and groundwater storage, aquatic and semi-aquatic habitat, biological diversity, and recreation. In California, only 10 percent of the wetlands that existed prior to European settlement remain intact, and only 5 percent of the coastal wetlands remain intact. Changes in hydrology, geochemistry,

substrate, or species composition can impair wetland and riparian areas and reduce their ability to filter out pollutants in runoff, which can degrade water quality in receiving waters.

Related Documents And Websites

State Water Resources Control Board, 1988. Nonpoint Source Management Plan. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1988.

State Water Resources Control Board, 1999. Plan for California's Nonpoint Source Pollution Control Program. Division of Water Quality, Sacramento, CA. December 1999.

State Water Resources Control Board, 2002. Water Quality Enforcement Policy. Office of Statewide Initiatives, Sacramento, CA. February 2002.

United States Environmental Protection Agency, 1993. Guidance Specifying Management Measures for Sources of Nonpoint Source Pollution in Coastal Waters. January 1993.

California Regional Water Quality Control Board- Los Angeles Region. State of the Watershed- Report on Surface Water Quality of the Ventura River Watershed. May 2002.

California Regional Water Quality Control Board- Los Angeles Region. Watershed Management Initiative, October 2004.

California Regional Water Quality Control Board, Los Angeles Region. Water Quality Control Plan for the Los Angeles Region. November 17, 1994.

http://www.waterboards.ca.gov/nps/protecting.html.

"In Hull Certification Program" Information-www.prodivers.org

California Nonpoint Source Encyclopedia
http://www.swrcb.ca.gov/nps/encyclopedia.html

Nonpoint Source Pollution Prevention Newsletter
http://www.swrcb.ca.gov/nps/docs/runoffrundown2006spring.pdf

NPS Guidance In your Area
http://www.swrcb.ca.gov/nps/guidance.html

Nonpoint Source 319 (h) Projects
http://www.swrcb.ca.gov/nps/current_proj.html

Managing Nonpoint Source Pollution from Households
http://www.epa.gov/owow/nps/facts/point10.htm

Cleanwater Act Section 319 and Nonpoint Source Control
http://www.epa.gov/owow/nps/cwact.html

Integration with Other Strategies

Implementation of NPS programs can benefit the following other water management strategies:

- Ecosystem Restoration
- Environmental and habitat protection and improvement
- Water Supply Reliability
- Groundwater management
- Recreation and public access
- Stormwater capture and management
- Water quality protection and improvement
- Wetlands enhancement and creation
- Conjunctive use
- Land use planning
- Surface storage
- Watershed planning
- Water and wastewater treatment

Possible Funding Sources

State Water Resources Control Board – 2005-2006 Consolidated Grants Program:

- Proposition 40 - Nonpoint Source Pollution Control Program
- Proposition 50 - Coastal Nonpoint Source Pollution Control Program
- Federal Clean Water Act Section 319 (h) - Nonpoint Source Implementation Program
- Propositions 40 and 50 - Agricultural Water Quality Grant Program
- Proposition 40 - Urban Storm Water Program
- Proposition 40 - Integrated Watershed Management Program
- Pesticides Research and Identification of Source, and Mitigation (PRISM) Grants
- Sustainable Communities Grant and Loan Program – the California Pollution Control Financing
- Citizen Monitoring Program & Related Funding Sources - The State Water Resources Control Board
- Department of Water Resources - The California Department of Water Resources (DWR)
- Rural Utilities Service - Water and Environmental Programs (WEP)
- US Department of Agriculture - Rural Development
- US Fish and Wildlife Service - Grants
- Environmental Grantmaking Foundations

5.2.9 Recreation and Public Access

Description

With Excerpts from the California Water Plan Update 2005

Water-dependent recreation includes a wide variety of outdoor activities that can be divided into two categories. The first category includes fishing, boating, swimming and rafting, which occur on lakes, reservoirs, and rivers. The second category includes recreation that is enhanced by water features but does not require actual use of the water, such as wildlife viewing, picnicking, camping and hiking.

Water-dependent recreation is included among the water management strategies because recreation is an important consideration for water managers. Water management, and water infrastructure, can have significant effects on recreation. By considering recreation during the planning process, water managers can take advantage of opportunities to enhance recreation and can guard against actions that would limit recreation.

Benefits of Implementation

Water-dependent recreation provides a wide range of health, social and economic benefits to California residents and visitors, while improving the quality of life. It encourages physical activity, such as swimming and paddling, as well as walking and bicycling along attractive waterside trails, and can be a strong attraction for – and integrated with – educational programs regarding water-related resources. Water-dependent recreation positively influences tourism, business and residential choices. It increases expenditures in the community for travel, food and accommodations. In 2001, California had 28 million out-of-state tourists spending an average of $76 a day and staying an average of four days. In addition, 196 million resident tourists spent an average of $70 a day. Sales of sportfishing licenses and stamps generated more than $49 million in annual revenue for the Department of Fish and Game in 2001 and 2002. Water-dependent recreation prompts long term investments while creating jobs in concessions, hotels, restaurants, and retail stores.

Existing Efforts

Ventura County is fortunate to have two local reservoirs that provide recreation and public access – Casitas Reservoir and Piru Reservoir. Piru Reservoir, operated by the United Water Conservation District, is available for boating, fishing, water skiing and swimming, while Casitas Reservoir, operated by the Casitas Municipal Water District offers boating and fishing (no body contact).

There are also natural rivers and estuaries that provide recreational experiences. The Ventura River Trail is a bikepath that runs from Ojai to Ventura along the Ventura River which provides excellent habitat viewing along the upper portion of the trail, and is linked to the Omer Rains Trail and Surfer's Point in Ventura as well as to the California Coastal Trail.

Several organizations are working to create or enhance trails, parkways and parks along local rivers and in local watersheds. These organizations include the Ojai Valley Land Conservancy, the Nature Conservancy, the Trust for Public Land, the Ventura Hillsides Conservancy, and others.

A primary source of recreation and tourism is the region's coastline and beaches. Connected by a network of local, State and Federal parks, Ventura County's beaches offer both passive and active water-related recreation opportunities that are highly dependent on the activities in the watersheds and the river and creek systems that drain to the ocean. Shoreline water quality is directly related to adjacent and upstream land use activities, which can have a dramatic influence over the marine environment effecting fishing and swimming, as well as habitat in the ocean and coastal wetlands.

Constraints to Implementation

Funding for developing water-dependent recreation usually comes from different sources than that which is used for construction of water-related infrastructure. Recreation funding for ongoing operation and maintenance may also be difficult to obtain. As well, the organizations that provide for recreational facilities, especially those that are non-income generating, are often different than the water-purveyance and sanitation agencies initiating a given infrastructure project. Therefore, when the integration of recreational aspects does not take place very early in the planning cycle of a water project, and with the full involvement of those government agencies and non-governmental organizations (NGOs) that are able to access recreation-related funding and planning resources, recreation often is left out of the project entirely.

Related Documents and Websites

Web Resources

Casitas Municipal Water District/Lake Casitas:
http://www.lakecasitas.info/

United Water Conservation District/Lake Piru:
http://www.lake-piru.org/

Ventura County Parks Department/Local Parks Information:
http://gsa.countyofventura.org/parks/parkinfo.htm

The Nature Conservancy – Ventura Area Project:
http://www.nature.org/wherewework/northamerica/states/california/preserves/art6332.html

The Trust for Public Land Programs:
http://www.tpl.org/tier2_pa.cfm?folder_id=1885

• Department of Fish and Game, License and Revenue Branch, www.dfg.ca.gov

• American Sportfishing Association, www.asafi shing.org

• California Department of Tourism,
www.gocalif.ca.gov

California Department of Parks and Recreation,
"Public Opinions and Attitudes on Outdoor Recreation
in California 2002," www.parks.ca.gov/planning

California Department of Parks and Recreation,
"California Outdoor Recreation Plan 2002,"
www.parks.ca.gov/planning

Public Research Institute, "Survey of Boat Owners
in California" www.waterplan.water.ca.gov/docs/cwpu2005/vol2/v2ch24.pdf

State Board of Forestry, California Department of Forestry
and Fire Protection, "The California Fire Plan," www.fire.ca.gov

Recommended Future Projects or Actions

The Group has agreed that recreation and public access are important aspects of water-related projects in the Region. While we have significant recreational opportunities in the Region, more is needed, because of the recognized significant benefits to quality of life that recreation provides, because of its contribution to the local tourism economy, and because of the strong potential link between water-related recreation and public education. Therefore, the Group makes the following specific recommendations:

1.) Evaluate the potential for the integration of recreational facilities into water-related projects very early in the planning cycle, and with the full involvement of those government agencies and non-governmental organizations (NGOs) that would be able to access recreation-related funding and planning resources.
2.) Develop an inventory of existing water-related recreational opportunities in the County, and develop a needs assessment for future opportunities.
3.) Foster specific project proposals that have been or are bring developed for river parkways along the Santa Clara and Ventura Rivers through regular review of long term water project plans in appropriate forums, such as watershed councils. This can be done through land acquisition and partnerships between private and public land owners. Properly designed river parkways can offer multiple benefits such as recreational enhancement, flood management, habitat protection and water quality improvement and are just one example of how recreational benefits can be provided.

Additionally, the following list of suggestions is excerpted from the California Water Plan Update, 2005

1. In developing water-dependent recreation opportunities, jurisdictions should consider public needs as identified in the California Outdoor Recreation Plan.

2. Use existing data and new surveys to determine recreational needs that might be met by incorporating recreation more fully into new State and regional water project planning.

3. Develop closer working relationships among appropriate State and local agencies that recreation planning is incorporated appropriately into program planning.

4. Conduct, and periodically re-examine, scientifically valid studies of the carrying capacity of proposed and existing sites for water-dependent recreation to help prevent degradation of water quality and wildlife habitat. Use data collected by other agencies, such as the U.S. Bureau of Reclamation, U.S. Army Corps of Engineers and for the Federal Energy Regulatory Commission.

5. Collect data on visitation rates vs. reservoir water levels and downstream flow rates, and use this data to help optimize the timing of water that is released or held for recreation.

6. Develop partnerships with universities to coordinate the monitoring of public recreation use, equipment and emerging outdoor and water-dependent recreation trends. Create partnerships with education providers to educate youth about preserving and protecting natural resources.

7. Promote and establish effective partnerships between Federal agencies, State and local governments, and the private sector for operation, maintenance and law enforcement of water recreation sites.

8. Coordinate with the Department of Fish and Game in exploring the use of funding from the Bay-Delta Sport Fishing Enhancement Stamp to integrate new and improved
public angling opportunities.

Integration with Other Strategies

When developing or enhancing recreational or public access opportunities or projects, the following other water management strategies can benefit:

- Environmental and habitat protection and improvement
- Water supply reliability
- Flood management
- Groundwater management
- Stormwater capture and management
- Water quality protection and improvement
- Water recycling
- Wetlands enhancement and creation
- Imported water
- Land use planning
- Surface storage
- Watershed planning

Possible Funding Sources

- State and Federal grants
- Local user fees or taxes
- Developer fees

5.2.10 Stormwater Capture And Management

Description

Stormwater runoff is a natural part of our planet's hydrologic process. However, human activities such as urbanization and agriculture can alter natural drainage patterns and add unwanted pollution to our streams, rivers, lakes and ocean. In fact, for many years efforts to control the discharge of stormwater focused strictly on *water quantity* issues such as drainage and flood control, and overlooked *water quality* issues resulting in a reduction of available non-polluted aquatic resources. Therefore, water quality capture and management strategies in California have recently been enhanced by both State and Federally mandated regulations and water quality protection programs. Collectively, these programs provide for a coordinated approach to water quality management in Ventura County.

Impervious Surfaces and Urban Runoff

By increasing the amount of impervious area due to urbanization, we significantly alter the hydrological and natural stormwater process, inadvertently creating an urban runoff problem. Urban runoff is water from rain, landscape irrigation, or from other sources that flows over the land surface. Pollutants present in urban runoff are generated from both on-site and off-site sources. These pollutants, which can be harmful to humans and aquatic ecosystems, may be deposited on impervious surfaces such as paved roadways, parking areas, walkways, patios and roofs. The pollutants can then flow into local creeks either directly or indirectly through the county's storm drains (also referred to as the "municipal separate storm sewer system" or "MS4") during rainstorms or other activities that generate the flow of water, thus creating polluted urban runoff. Polluted runoff to local creeks may result in impairment of both the creeks and downstream water bodies, including rivers, lakes, and ultimately, the ocean.

Runoff from Construction Related Activities

New development may increase the amount of impervious surface area within a watershed. In addition to conveying pollutants, impervious surfaces may also affect local waterways by increasing the volume and intensity of runoff. Flooding, excessive bank erosion, and channel modification may occur as a result of increases in runoff flows.

Common sources of pollutants from construction sites include: sediments from soil erosion; construction materials and waste (e.g., paint, solvents, concrete, and drywall); landscaping runoff containing fertilizers and pesticides; and spilled oil, fuel, and other fluids from construction vehicles and heavy equipment.

Runoff from Industrial Related Activities

Federal stormwater regulations require a broad range of industrial facilities to be permitted. They include manufacturing facilities, plating shops, mining operations, disposal sites, recycling yards, transportation facilities, and others.
Activities that take place at industrial facilities (material handling and storage for example) are often exposed to the weather.

As runoff from rain or snowmelt comes into contact with these materials, it picks up various pollutants and transports them to the storm sewer systems, rivers, lakes, or coastal waters. As a

result, stormwater pollution from industrial facilities is a significant source of water quality problems throughout the nation.

Hydromodification

Hydromodification is the alteration away from a natural state of stream flows or the beds or banks of rivers, streams, or creeks, including ephemeral washes, which result in hydrogeomorphic changes. Activities that alter natural stream flows may include increasing the amount of impervious land area within the watershed, altering patterns of surface runoff and infiltration, and channelizing natural watercourses.

Benefits of Implementation

Future stormwater quality improvement projects would enable us to further identify and assess priority problems, encouraging a high level of stakeholder/local resident involvement, and measure program success through water quality monitoring and other data gathering. This would allow for the further development of comprehensive solutions to stormwater pollution within the Ventura County.

In addition, stormwater capture and management projects would result in an increase in groundwater supplies as well as a reduction in flood and erosion impacts and pollutant loading.

Existing Efforts

NPDES Permits

Point-source discharges are controlled and regulated through the Federal Clean Water Act (CWA). Recognizing that urban stormwater runoff had increasingly become a water quality concern, Congress added section 402(p) of the CWA, which established a comprehensive approach to stormwater control using the already existing National Pollutant Discharge Elimination System (NPDES) of permitting. Under this NPDES permit system, for the purposes of stormwater quality capture, regulation and management, stormwater discharges are divided into the following three categories: (1) Municipal Separate Storm Sewer Systems (MS4) discharges, (2) Construction related discharges, and (3) Industrial related discharges.

MS4 Discharges - The Stormwater Quality Management Program

The Ventura Countywide Stormwater Quality Management Program (Program) was established pursuant to Section 402(p) of the Federal Clean Water Act, which requires all point source discharges of pollutants into waters of the United States, including discharges from municipal separate sewer storm drain systems (MS4s), to be regulated by a National Pollutant Discharge Elimination System (NPDES) permit. On August 22, 1994 the California Regional Water Quality Control Board, Los Angeles Region (RWQCB), issued a NPDES permit to the Ventura County Flood Control District (now known as the Ventura County Watershed Protection District), the County of Ventura, and the cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buenaventura, Santa Paula, Simi Valley, and Thousand Oaks as Co-permittees, for discharges of stormwater and urban runoff from MS4s into the receiving waters of the Santa Clara River, Ventura River, Calleguas Creek, Malibu Creek and other coastal watersheds within Ventura County.

During the first permit term, a comprehensive Stormwater Quality Management Plan and a Stormwater Quality Monitoring Plan were developed and became the framework for protection and a better understanding of stormwater quality in the permitted area. Implementation began immediately, with some elements phased in throughout the permit term. During implementation, the plans were reviewed regularly and refined to reflect experience gained during implementation. Six annual program reports were prepared during the first term permit and document the specific accomplishments of the Program.

On July 27, 2000, approximately one year after expiration of the first term permit (which was extended by order of the RQWCB), the second term NPDES Permit No. CAS004002 (Permit) was issued to the Ventura County Co-permittees. The Stormwater Monitoring Program submitted as part of the Report of Waste Discharge (ROWD) was revised in January 2001 to reflect the requirements of the Permit. The revised Stormwater Monitoring Program describes Program details, the schedule for implementation, and performance goals. The schedule and tasks are projected over the 5-year Permit period (July 27, 2000 through July 27, 2005). The Permit and the SMP are specifically designed to develop, achieve, and implement a timely, comprehensive, and cost-effective stormwater pollution control program.

The ultimate goal of the program is to reduce pollutants in Ventura County stormwater discharges to the Maximum Extent Practicable (MEP).
The SMP translates the Permit requirements into program elements consistent with municipal agency operations. The Implementation chapter of the Ventura County SMP consists of the following elements:

1. Program management
2. Programs for residents
3. Programs for industrial/commercial businesses
4. Programs for land development
5. Programs for construction sites
6. Programs for Co-permittee facility maintenance, and
7. Programs for illicit discharge control

Controlling Pollution from New Development

As urbanization continues to degrade our rivers and coastal waters, Low Impact Development (LID) is increasingly being used to reverse this trend, resulting in cleaner bodies of water, greener urban neighborhoods, and better quality of life. LID offers a strong alternative to the use of centralized stormwater treatment. It aims to work within the developed and developing environment to find opportunities to reduce runoff and prevent pollution. LID controls stormwater runoff at the lot level, using a series of integrated strategies that mimic and rely on natural processes. By working to keep rainwater on site, slowly releasing it, and allowing for natural physical, chemical and biological process to do their job, LID avoids environmental impacts and expensive treatment systems later.

LID is grounded in a core set of principles based on the paradigm that stormwater management should not be seen as stormwater disposal and that numerous opportunities exist within the developed landscape to control stormwater runoff close to the source. Underlying these principles is an understanding of natural systems and a commitment to work within their limits whenever possible. Doing so creates an opportunity for development to occur with decreased environmental impact.

Recommendations:

Support the development and implementation of LID Guidance Manual and policies including:

- Integration of stormwater management early in site-planning activities
- Use of natural hydrologic functions as the integrating framework
- Focus on prevention rather than mitigation
- Emphasize simple, nonstructural, low-tech, and low-cost methods
- Manage stormwater runoff as close to the source as possible
- Distribute small-scale practices throughout the landscape
- Rely on natural features and processes
- Create a multifunctional landscape
- Education and outreach

SQUIMP

Stormwater Quality Urban Impact Mitigation Plan (SQUIMP) was developed as part of the municipal stormwater program to address stormwater pollution from new development and redevelopment by the private sector. The application of SQUIMP requirements reduces stormwater pollutants from new development by employing on-site control measures for commercial, industrial, multi-family, and single-family residential land uses. *Source Control Measures* and *Treatment Control Measures* required by SQUIMP refer to best management practices (BMPs) and features incorporated in the design of a land development or redevelopment project which prevent and/or reduce pollutants in stormwater runoff from the project.

Source Control Measures limit the exposure of materials and activities so that potential sources of pollutants are prevented from contacting storm runoff. Treatment Control Measures are reasonable, engineered systems that provide a reduction of pollutants in runoff to be consistent with the MEP standards imposed by the Federal Clean Water Act on the City and County. The Technical Guidance Manual for Stormwater Quality Control Measures was developed in July 2002, to assist developers in applying SQUIMP requirements to their projects.

Recommendations:

Continued support of the Stormwater Quality Urban Mitigation Plan (SQUIMP) including:

- Stormwater Quality Urban Impact – BMPs
- Source Control and treatment measures

Industrial/Commercial Businesses

In order to minimize the impact of stormwater discharges from industrial facilities, the NPDES program includes an industrial permitting component. Operators of specific industrial facilities are required to obtain permit coverage under an NPDES Industrial General Permit.

The permit process includes filing for a Notice of Intent (NOI), submitting a site map, and paying the appropriate fee to the State Water Board. In addition, industrial facilities are required to develop an extensive Stormwater Pollution Prevention Plan (SWPPP) and implement both structural and non-structural Best Management Practices (BMPs) to limit exposure of pollutants.

These BMPs are required to achieve the performance standard of Best Available Technology (BAT) and Best Conventional Control Technology (BCT). Stormwater sampling/monitoring is required as well as the submittal of an annual report, due July 1 each year, that indicates compliance levels.

Recommendations:

Continue implementation of the practices as outlined in the SWPPP including:

- BMPs to limit the exposure of pollutants
- Best Available Technology (BAT) procedures
- BEST Conventional Control Technology (BCT) procedures

Construction Sites

Construction activity that will disturb one to five acres (or more) requires coverage under the General Construction Activity Storm Water Permit (General Construction Permit) issued by the State Water Resources Control Board (SWRCB). Prior to construction, a Notice of Intent (NOI), and the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) must be approved by the SWRCB. The SWPPP must list Best Management Practices (BMPs) that the discharger will consider to reduce the amount of sediment and other pollutants from running off site. In addition, the SWPPP must contain a sampling/monitoring program to deal with non-visible pollutants if a particular BMP fails or is breached.

Development projects disturbing less than one acre of land are not required to file an NOI or prepare a SWPPP. However, they must comply with the conditions of MS4/NPDES Permit. In addition, they must include construction BMPs to control erosion and the discharge of stormwater pollutants associated with construction activities. Prior to the issuance of a grading permit, the applicant may be required to submit an Erosion Control Plan/SWPCP to the satisfaction of the Land Development/Grading Section. Construction sites that perform de-watering operations are also required to apply for applicable WDR/NPDES permits issued through the State Water Board.

Construction sites are inspected once during the wet season and an inspection checklist is completed. Follow-up inspections are conducted to ensure that BMPs are being implemented.

Recommendations:

Continue implementation of the practices as outlined in the SWPPP including:

- BMPs to control erosion and discharge of stormwater pollutants associated with construction activities

Hydromodification - (Also refer to Nonpoint Source Section)

Hydromodification impairs beneficial uses such as warm and cold water habitat, spawning habitat, wetland habitat, and wildlife habitat in a variety of ways. Modifications to stream flow and the stream channel may alter aquatic and riparian habitat and affect the tendency of aquatic and riparian organisms to inhabit the stream channel and riparian zone. As a result of these hydromodifications, the biological community (aquatic life beneficial uses) may be significantly altered, compared to the type of community that would inhabit an unaltered, natural stream. Modifications, such as channelization, may impair beneficial uses by disturbing vegetative cover,

removing habitat; modifying or eliminating instream and riparian habitat; degrading or eliminating benthic communities; increasing scour and erosion as a result of increased velocities, and increasing water temperature when riparian vegetation is removed.

Recommendations:

Continue implementation of the practices as outlined in the SWPPP including:

- Minimize or eliminate modifications to the natural stream channel wherever possible and support efforts to return watercourses to a natural flow regime wherever feasible.

Erosion and Sediment Control

Recommendations:

Continue to support and implement practices that protect or rehabilitate eroded streambanks including:

- Structural practices that provide stream stability

- Direct methods including stone riprap revetments, erosion control fabrics and mats, revegetation, burlap sacks, cellular concrete blocks, and bulkheads
- Indirect methods including dikes, wire or board fences, gabions and stone longitudinal dikes

Streambank and Shoreline Erosion Protection

Recommendations:

- Use of vegetative cover to protect or rehabilitate eroded streambanks. Streambank protection using vegetation is probably the most commonly used practice, particularly in small tributaries. Vegetative cover, also used in combination with other structural practices, is relatively easy to establish and maintain, is visually attractive and is the only streambank stabilization method that can repair itself when damaged.
- Use of structural, vegetative or bioengineered practices to control instream sediment loading. Streambank protection and channel stabilization practices, including various types of revetments, grade control structures and flow restrictors have been effective in controlling sediment production caused by streambank erosion.

Stormwater Capture , Recharge and Reuse

A number of potential opportunities exist for stormwater runoff capture and recharge and reuse. Collection of open space runoff for groundwater recharge provides an alternative to the use of potable water and increases the use of water from existing aquifers. Urban stormwater can be collected and used for landscape irrigation in lieu of the use of groundwater. The capture and management of stormwater runoff increases water storage capacity, reduces flood and erosion impacts, and decreases pollutant loading.

Recommendations:

Continue to implement practices that maximize stormwater recovery including:

- Stormwater capture, storage, treatment, and re-use management projects
- Assessment of Opportunities to recover Stormwater Runoff – Calleguas Creek
- Stormwater Runoff for Groundwater Recharge – Calleguas Creek

Water Quality Monitoring Activities

The Ventura Countywide Stormwater Monitoring Program enables the Watershed Protection District and the Co-permittees to reduce urban runoff as well as comply with Federal and State stormwater requirements of the National Pollutant Discharge Elimination System (NPDES) Permit. Future water quality endeavors, aided by Proposition 50 funding, will greatly benefit the community and increase public awareness for clean water. The Stormwater Monitoring Program is conducted with the following four major objectives as its focus:

- Characterizing stormwater discharges from monitoring sites representative of different land uses: industrial, agricultural, and residential
- Establishing the impact of stormwater discharges on receiving waters by conducting receiving water quality, mass emission, and bioassessment monitoring
- Identifying pollutant sources based on analysis of monitoring data, inspection of businesses, and investigation of illicit discharges
- Defining stormwater program effectiveness using data collected before and after implementation of pollution prevention programs

The Stormwater Monitoring Program includes both stormwater management and scientific elements. The collection and analysis of stormwater samples across Ventura County and the analysis and interpretation of the resulting data are the central activities of the Stormwater Monitoring Program. Analytical results are stored in the Water Quality Database and are easily accessible to enable the interpretation of data. The database also performs functions to ensure that water quality objectives are met and that the data evaluation process is successful. Data can be accessed at any time for the purposes of compliance reporting, trend identification, identifying pollutants of concern, or data sharing activities.

The current monitoring program consists of three mass emission sites, two urban use discharge characterization sites, one agricultural land use site, and two receiving water monitoring sites.

Land Use Site Monitoring

Land Use Site monitoring is designed to capture stormwater discharge from a specific type of land use. In the Stormwater Management Plan, sites are chosen to represent three land use types: agricultural, industrial, and residential. Land use monitoring is designed to characterize stormwater discharges from these specific land uses.

Receiving Water (Tributaries) Monitoring

Receiving water monitoring is designed to characterize the quality of receiving waters rather than discharges to the receiving waters. This type of monitoring evaluates the water quality of smaller

waterbodies tributary to main river systems. Monitoring smaller tributaries allows the Stormwater Monitoring Program to focus on smaller sub-basins of the watershed that are not impacted by discharges from wastewater treatment facilities.

Mass Emission Monitoring

The purpose of mass emission monitoring is to identify pollutant loads to the ocean and identify long-term trends in pollutant concentrations. Mass emission sites are located in the lower reaches of major watersheds. Through water quality monitoring at these sites, the Stormwater Monitoring Program can evaluate the cumulative effects of stormwater and other surface water discharges on beneficial uses in the watershed prior to discharge to the ocean. Mass emission monitoring stations allow for the measurement of water quality parameter concentrations resulting from discharges throughout an entire watershed. The Mass emission drainage areas are much larger than the drainage areas associated with receiving water sites, and include other sources of discharge, such as wastewater treatment plants, nonpoint sources, and groundwater discharges.

Bioassessment Monitoring

The Ventura County Stormwater Monitoring Program also includes the Bioassessment Monitoring Program. Biological assessments of water resources integrate the effects of water quality over time and are capable of simultaneously evaluating multiple aspects of water and habitat quality. When integrated with physical and chemical assessments, bioassessments help to further define the effects of point and Nonpoint source discharges of pollutants and provide a more appropriate means for evaluating impacts of non-chemical substances, such as sedimentation and habitat alteration.

Aquatic Pesticides Monitoring

Aquatic Pesticides monitoring is performed for the purpose of characterization of representative aquatic pesticide during application projects.

Recommendations:

Support of the Ventura Countywide Stormwater Monitoring Program including:

- Increase water quality monitoring stations to better identify sources of point source pollution
- Expand data sharing/ data reporting capabilities through the Surface Water Ambient Monitoring Program (SWAMP)
- Water quality database/GIS based interactive website link

Constraints to Implementation

Factors affecting the implementation of countywide urban, agricultural and business/industrial programs include funding, difficulty in reaching the non-English speaking population, resistance to change, and the inability to accurately measure program effectiveness.

Limited Funding

Limited funding and therefore, limited staff, prohibits these programs from realizing their full potential. Demands on the programs have increased dramatically. Staff has been able to respond to

demands and implement programs but could create additional programs to assist in water awareness education if additional funding were available.

Language Barriers

Language barriers can be an obstacle in educating the non-English speaking population of the County. Since 1990 several water brochures have been printed in Spanish and distributed to various communities throughout the county. Education of the general non-English speaking population is not believed to be a significant problem. However, due to the high turnover rate of the large, Spanish speaking farmworker population, education of farmworkers has become a concern. Presentations to growers are effective; however, information may be lost in the translation from grower to farmworker due to language and cultural barriers. This concern also applies to the landscape industry which has a significant population of Spanish speaking workers responsible for maintaining urban landscape and irrigation systems.

Related Documents and Websites

- www.ventura.org/vcpwa/fc/stormwater/index.htm
- www.swrcb.ca.gov
- www.swrcb.ca.gov/~rwqcb4
- www.ieca.org
- www.forester.net/ec.html
- www.forester.net/sw.html
- www.vcstormwater.org

Stormwater Management & Research Library
http://www.stormwatercenter.net/

Using Smart Growth Techniques as Stormwater Best Management Practices, EPA
www.epa.gov/smartgrowth

Recommended Future Projects or Actions

- Implement best management practices such as regular channel cleaning and improvement projects
- Adopt ordinances and policies in regard to new development within 100 feet of watercourses
- Construct and maintain debris basins
- Remove hazards or facilities from water courses to eliminate damage due to flooding/high flows

Integration with Other Strategies

Stormwater capture and management programs and projects can provide benefits to the following other water management strategies.

- Ecosystem Restoration
- Environmental and habitat protection and improvement
- Water Supply Reliability
- Flood management
- Groundwater management
- Water quality protection and improvement

- Water recycling
- Wetlands enhancement and creation
- Conjunctive use
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment

Possible Funding Sources

- State Water Resources Control Board – 2005-2006 Consolidate Grants Program:

  Propositions 40 and 50 – Agricultural Water Quality Grant Program
  Proposition 40 – Urban Storm Water Program
  Proposition 40 – Integrated Watershed Management Program

- Pesticides Research and Identification of Source, and Mitigation (PRISM) Grants
- Sustainable Communities Grant and Loan Program – the California Pollution Control Financing
- Citizen Monitoring Program & Related Funding Sources – The State Water Resources Control Board
- Department of Water Resources – The California Department of Water Resources (DWR)
- Rural Utilities Service – Water and Environmental Programs (WEP)
- US Department of Agriculture – Rural Development
- US Fish and Wildlife Service – Grants
- Environmental Grant-making Foundations

5.2.11 Surface Storage

Description

With Excerpts from the California Water Plan Update 2005

Surface storage is the use of reservoirs to collect water for later release and use. Surface storage has played an important role in California where the pattern and timing of water use does not always match the natural runoff pattern. Most California water agencies rely on surface storage as a part of their water systems. Similarly, surface storage is often necessary for, or can increase, benefits from other water management activities such as water transfers, conjunctive management and conveyance improvements. Some reservoirs contribute to water deliveries across several regions and some only contribute to water deliveries within the same watershed. Surface reservoirs can be formed by building dams across active streams or by building off-stream reservoirs where the majority of the water is diverted into storage from a nearby water source.

Surface storage capacity can also be developed by enlarging, re-operating or modifying outlets on existing reservoirs. Smaller reservoirs typically store water in one season for use in another season, while larger reservoirs can do the same or store water for use
over several years.

For the purposes of this IRWMP, surface storage refers to surface reservoirs or storage tanks used to store water for longer periods of time for later use, as opposed to spreading or percolation ponds which are used for the purposes of recharging groundwater aquifers.

Benefits of Implementation

Many of California's reservoirs were originally built for the primary purposes of hydropower, flood control, and consumptive water use. Although the allocation of benefits for proposed surface storage can affect the occurrence and magnitude of different types of benefits, they generally can include the following:

- Water quality management
- System operational flexibility
- Power generation
- Flood management
- Ecosystem management
- Sediment transport management
- Recreation
- Water supply augmentation
- Emergency water supply

The presence of new surface storage could allow ecosystem and water managers the flexibility to take actions and make real-time decisions that would not be possible without the storage. Water transfers between regions could be easier if water can be released from upstream storage at appropriate times and the receiving regions have reservoirs to store the transferred water. Surface storage can improve the effectiveness of conjunctive water management strategies by more effectively capturing runoff that can ultimately be stored in groundwater basins.

Storage projects can facilitate the movement of water when needed to improve source water quality directly or facilitate blending of water from different sources to optimize system water quality.

New surface storage can also help reduce the risk associated with potential future climate change by mitigating the effects of a relatively smaller seasonal snow pack storage capacity as well as increased or more sustained peak flood flows.

Existing Efforts

Several reservoirs have been constructed in Ventura County for water supply, flood management and recreation purposes (Lake Casitas and Lake Piru). Bard Reservoir provides storage for imported State Water, but does not provide public access or recreation. See Section 2, Region Description for more information about local surface reservoirs.

Constraints to Implementation

Most of the best reservoir sites have already been used, and the new standards of environmental regulations are significant constraints to development of surface storage in the mountains. The range of surface storage development options for smaller local agencies is more limited than for the State and Federal governments. Local agencies have limited ability to use State or Federal funds, and do not have the ability to work as closely with their corresponding resource regulatory agencies such as the State and Federal agencies do as part of CALFED. Additionally, there are physical limitations on storage options in some parts of California. In some areas, off-stream storage is not feasible. These circumstances severely constrain the ability of local governments and agencies to finance and implement the projects necessary to sustain the local economy and serve increasing populations.

Recommended Future Projects or Actions

There are currently no plans in Ventura County to augment or develop open water reservoirs. Due to the cost, environmental impacts and time to construct, this is one of the most expensive and difficult means to develop new water supplies in the Region.

In fact, the local Matilija Dam is in the process of being evaluated for removal in order to restore habitat along the Matilija Creek and Ventura River. The Dam, constructed in 1947 by the Ventura County Watershed Protection District, was intended to provide a local water supply, while offering flood protection for downstream communities. During the 60 years of its life, the build-up of sediment behind the dam has undermined both of those original functions. The initial storage capacity of the reservoir was 7,018 acre feet, but today it holds less than 500 acre feet of water. Over time, it has become clear that the presence of the dam has adversely impacted the ecosystems of Matilija Creek and the Ventura River. Not only does the dam prevent the natural flow of sand and sediment from the mountains to the beaches, it also blocks the endangered steelhead trout from swimming upstream from the ocean to the place of their ancestral spawning and rearing. Steelhead depend on the cool, year-round waters found in the upper reaches of the Watershed for breeding. Today, over half the original steelhead spawning habitat lies locked behind Matilija Dam.

General Recommendations From California Water Plan Update 2005

1. Local agencies seeking to implement storage projects should develop a comprehensive methodology for analyzing all benefits and full costs of projects. DWR should provide technical expertise and assistance to the local agencies if asked.

2. Reservoir operators and stakeholders should continue to adaptively manage operations of existing facilities in response to increased understanding of system complexities and demands as well as changes in natural and human considerations such as social values, hydrology, and climate change.

3. DWR and other local, State and Federal resource management agencies should continue studies, research and dialogue focused on a common set of tools that would
help determine the full range of benefits and impacts as well as the costs and complexities of surface storage projects.

4. Water resources scientists, engineers and planners, including DWR should recognize the potential long development time for new surface storage in securing funding needed for continuity of planning, environmental studies, permitting, design, construction, and operation and maintenance.

Integration with Other Strategies

Implementation of surface storage can benefit the following other strategies:

- Ecosystem Restoration
- Environmental and habitat protection and improvement
- Water Supply Reliability
- Flood management
- Groundwater management
- Recreation and public access
- Stormwater capture and management
- Water quality protection and improvement
- Wetlands enhancement and creation
- Conjunctive use
- Imported water
- Watershed planning
- Water transfers

Possible Funding Sources

Construction usually requires a lot of money in a short time – perhaps $1 billion or more over five years for larger projects. Included in the long-term capital outlay are planning costs such as administrative, engineering, legal, financing, permitting and mitigation, which can also require significant investments. Some new storage options such as raising existing reservoirs, re-operating or modifying outlets on existing reservoirs, or the construction of small local reservoirs may require significantly less capital, but may require local funding through revenue or general obligation bonds. Even these less costly projects could face financial challenges.

5.2.12 Water Quality Protection and Improvement

Description

Water quality is one of the many key issues facing the Region. Water quality issues are addressed in the IRWMP Objectives as follows:

Protect and improve water quality

- Identify and evaluate the opportunities to improve water quality and to implement appropriate projects or take appropriate actions to realize those opportunities. Such projects and actions could include increased water quality improvement, land use controls, construction of facilities, and other water management techniques.
- Meet State and Federal water quality standards.
- Manage and remove salts in the watersheds and comply with TMDL requirements.

Water quality protection and improvement is one of the most important strategies being implemented in the Region, and is linked with most other strategies being implemented.

Benefits of Implementation

For the vast majority of contaminants, it is generally accepted that a pollution prevention approach to water quality is more cost-effective than end-of-the-pipe treatment of wastes or advanced domestic water treatment for drinking water. Pollution prevention measures are usually more cost-effective because they have lower initial capital costs, as well as less ongoing operations and maintenance costs, than traditional engineered treatment systems. However, because of the nature and sources of some contaminants, like bromide (introduced by seawater) and organic carbon (natural runoff from the watershed), a pollution prevention approach may not be possible, cost-effective, or even desirable in some instances. Small water systems, which generally lack technical and financial capacities, may be more reliant upon pollution prevention measures than other options available to larger systems, such as advanced treatment. High-quality, near-shore coastal waters provide multiple benefits or uses by providing recreational opportunities, as well as serving as a water source for desalination plants and habitat for wildlife (2005 California Water Plan).

Pollution prevention can improve water quality for all beneficial uses by protecting water at its source, reducing the need and cost for other water management and treatment options. By preventing pollution throughout a watershed, water supplies can be used, and re-used, for a broader number and types of downstream water uses. Improving water quality by protecting source water is consistent with a watershed management approach to water resources problems. In addition, the legal doctrine of "public trust" demands that the State protect certain natural resources for the benefit of the public, including uses such as fishing, protection of fish and wildlife, and commerce, all of which are affected by pollution (2005 California Water Plan).

Matching water quality to water use is a management strategy that recognizes that not all water uses require the same quality water. One common measure of water quality is its suitability for an intended use, and a water quality constituent is often only considered a contaminant when that constituent adversely affects the intended use of the water. High quality water sources can be used for drinking and industrial purposes that benefit from higher quality water, and lesser quality water can be adequate for some uses, such as riparian streams with plant materials benefiting fish.

Further, some new water supplies, such as recycled water, can be treated to a wide range of purities that can be matched to different uses. The use of other water sources, again, like recycled water, can serve as a new source of water that substitutes for uses not requiring potable water quality (California Water Plan 2005).

Existing Efforts

There are many efforts underway to protect and improve water quality in the Region. These projects and programs are implemented at the local level by wholesale and retail water agencies, Cities and other agencies. State and Federal projects and programs are also implemented within the Region to help address water quality problems. Current and future planned efforts to improve water quality are described in detail in the Adopted Calleguas Creek Watershed Management Plan, locally adopted Urban Water Management Plans, and other related water management plans (see Related Documents and Websites below), as well as in other sections of this IRWMP (i.e. Groundwater Management).

Constraints to Implementation

Potential Costs - According to the 2000 USEPA Clean Water Needs Survey, California has more than $14 billion of needs to prevent both point source and nonpoint source pollution. This survey, though, emphasized point source discharges, which represented more than $13 billion of the needs and likely underestimated the cost of measures to adequately prevent nonpoint source pollution. In terms of drinking water quality, investments in pollution prevention measures may entail more risk and uncertainty in improving water quality relative to advanced domestic water treatment options (2005 California Water Plan).

Related Documents And Websites

1. California Water Plan 2005 (Department of Water Resources)

2. California's Groundwater, Bulletin 118, Update 2003

3. California Regional Water Quality Control Board, Los Angeles Region. *Water Quality Control Plan for the Los Angeles Region, November 17, 1994*

4. California Regional Water Quality Control Board- Los Angeles Region. *State of the Watershed- Report on Surface Water Quality of the Ventura River Watershed, October 2004 Version*

5. California Regional Water Quality Control Board- Los Angeles Region. *State of the Watershed- Report on Surface Water Quality of the Santa Clara River, October 2004 Version*

6. California Regional Water Quality Control Board- Los Angeles Region. *State of the Watershed- Report on Surface Water Quality of the Calleguas Creek Watershed, October 2004 Version*

7. California Regional Water Quality Control Board- Los Angeles Region. *State of the Watershed- Report on Surface Water Quality of the Miscellaneous Coastal Watersheds, October 2004 Version*

8. California Regional Water Quality Control Board – Los Angeles Region, 2004 *Watershed Management Initiative Chapter*http://www.waterboards.ca.gov/losangeles/html/programs/regional_programs.html - Watershed

9. Ventura County Groundwater Quality Assessment Draft Report, 2005, Watershed Protection District's Groundwater Resources Section

10. Draft Management Plan, Fox Canyon Groundwater Management Agency, July 2006

11. California Department of Water Resources, 1993. Investigation of Water Quality and Beneficial Uses – Upper Santa Clara River Hydrologic Area.

12. Southern California Wetlands Recovery Project Information Station website http://www.wrpinfo.scc.ca.gov/watersheds/sc/sc_subprofiles.html

13. United Water Conservation District http://www.unitedwater.org/

14. US Geological Survey with United Water Conservation District, 1999. Evaluation Of Surface Water/Ground Water Interactions in the Santa Clara River Valley, Ventura County, California

15. California Regional Water Quality Control Board – Los Angeles Region, 1999. *Staff Report. Proposed Amendment to the Water Quality Control Plan for the Los Angeles Region for a Prohibition of Septic System Discharges in the Oxnard Forebay*

16. Los Angeles County Department of Public Works, Ventura County Watershed Protection District and SCREMP Project Steering Committee, Public Review Draft. Santa Clara River Enhancement and Management Plan. Prepared by AMEC Earth & Environmental.

17. State of California, Department of Health Services Drinking Water Source Assessment and Protection (DWSAP) Program, Source Water Protection Programs http://www.epa.gov/OGWDW/whpnp.html

18. City of Oxnard Water Division's Reports - *Advanced Planning Study of the City of Oxnard's (City) Groundwater Recovery Enhancement And Treatment Program GREAT Program)*

19. http://www.oxnardwater.org/documents/studies/greataps.asp

20. California Regional Water Quality Control Board - Central Valley Region, *Staff Report on Salinity Issues in the Central Valley, January 2006.* http://www.waterboards.ca.gov/salinity/index.html

21. California Regional Water Quality Control Board – Central Coast Region, *Staff Report on Regional Board Vision for Central Coast, Regional Board Conservation Program, and "Other" Water Quality Issues, including Attachment No. 1 March 2005*

22. Algalita Marine Research Foundation (AMRF) - Non-profit organization with a intentioned purpose to communicate scientific research to the general populace (http://www.algalita.org/links.html

23. Study published in Environmental Science & Technology showing PCBs and DDE adsorbed onto plastics and can potentially accumulate these endocrine disrupting hydrophobic pollutants up to 1 million times those in the surrounding seawater: http://www.findarticles.com/p/articles/mi_m1200/is_5_159/ai_71352472

24. The National Resources Conservation Service provides substantial information on the research associated with water quality riparian buffer zones. This information can be found at: http://www.lnrcs.usda.gov/features/buffers/

25. Regulation of plastics can be found at the California Integrated Waste Management Board website: http://www.ciwmb.ca.gov/BuyRecycled/TrashBags/LegReport/

26. Heal the Bay's 16th Annual Report Card 2005-2006, Ventura County. Monitoring results are at posted at http://www.ventura.org/env_hlth/ocean.htm.

Recommended Future Projects or Actions

General Recommendations (from 2005 California Water Plan):

- The State should adopt a strategy that integrates improvements in pollution prevention, water quality matching, and drinking water, treatment and distribution. The strategy would focus in particular on the prevention of nitrate pollution Statewide.
- The State should adequately fund Regional Board Basin plan triennial review and Basin Plan updates.
- State agencies with a regulatory, management, or scientific role in the California's water quality should take the lead in establishing an Interagency Water Quality Program to coordinate and integrate all Federal, State, and local water quality monitoring and assessment programs for surface water and groundwater. This program would include a focus on emerging, unregulated contaminants in order to provide an early warning system of future water quality problems, as well as identify trends in water quality. Such a program would also seek to standardize methods, regularly monitor the quality of all waters of the State, and provide compatible data management that is accessible to a wide range of users.
- Regional, tribal, and local governments and agencies should establish drinking water source and wellhead protection programs to shield drinking water sources and groundwater recharge areas from contamination. These source protection programs should then be incorporated into local land use plans and policies. Such programs would encourage or regulate land-use activities that are protective of water quality, or, alternatively, discourage or restrict land uses or activities that threaten surface and groundwater quality.
- The State should prioritize grant funding for source water protection activities, including building institutional capacity for watershed planning.

SURFACE WATER QUALITY PROTECTION STRATEGIES

Sanitary Sewer Line Breaks

Sewage spills due to storm damage line breaks result in lost use of the watershed and beaches for recreation and in curtailment of water operation from rivers or streams until the waters have been confirmed to be clear of contamination.

Recommendation:

Assist in the relocation or protection of vulnerable sanitary sewer pipelines and associated facilities.

Wastewater Treatment Plant Effluent

The majority of wastewater treatment plants currently comply with effluent discharge requirements of National Pollutant Discharge Elimination System (NPDES) permits. However, with the opportunity to reclaim/recycle more wastewater, there will be a need for more advanced treatment.

Recommendation:

Assist where feasible plant modifications to improve discharge effluent quality to ensure wastewater treatment plants comply with discharge requirements. Encourage, and assist where feasible, the improvement of wastewater treatment facilities to tertiary or advanced tertiary level treatment.

Replacement of Existing Septic Systems

Failing existing septic systems are contributing to public health and safety problems.

Recommendation:

Encourage the use or expansion of sewer systems or package treatment plants to replace existing septic systems where failing septic systems are contaminating water supplies. All proposed package plants shall be consistent with the goals and policies of the County General Plan. Package plants should be sized and explicitly restricted to serve only the single-purpose site.

Waste Trash and Plastic in Watersheds, Beaches and Oceans

Waste plastics have been observed accumulating in the ocean and are more concentrated in a section of the Pacific Ocean between California and Hawaii (due to the Pacific Gyre). Plastics are not biodegradable, but do break down into smaller pieces that become edible by many species of marine taxa. According to the Algalita Marine Research Foundation (AMRF), waste plastics (including “plastic nurdles” which are pre-production plastic beads used as the material for plastic molds and products) are accumulating in the marine water column to the extent that they can outweigh plankton by a six to one margin in some areas. Toxic chemicals also accumulate on the surface of waste plastics.

Municipalities could use screens or grates on stormwater inlets as a direct method to control the discharge of plastics into the environment. The screens trap debris, and the debris then traps smaller particles such as plastic nodules. Municipalities would have to remove the accumulated trash in front of the screens. The solution to the waste plastics issue will likely come from legislation that requires fundamental changes in the plastics industry.

Recommendations:

- Initiation investigation in the magnitude of trash and plastics making their way into the County's inland waterways and to the Pacific Ocean
- Develop and promote policies that promote source control for trash and plastics
- Install screens and grates on storm drain inlets were feasible
- Develop and promote policies and legislation (Federal and State) that change the way plastics are produced and handled.

Urban Runoff/Stormwater Program (See Stormwater Management and Capture Section for Management Strategies including Low Impact Development).

Recommendations:

See Recommendations under the Stormwater Management and Capture Section.

Power Plants and Once-Through Cooling Impacts

The withdrawal of cooling water removes billions of aquatic organisms from waters of the U.S. each year, including fish, fish larvae and eggs, crustaceans, shellfish, sea turtles, marine mammals, and many other forms of aquatic life. Section 316(b) of the Clean Water Act (CWA) requires USEPA to ensure that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts. On July 9, 2004, the United States Environmental Protection Agency (USEPA), under a consent decree, published the revised, Phase II Rule, aimed to minimize the environmental impacts from impingement and entrainment from existing coastal power plants cooling water intake structure (CWIS). The State Water Board is in the process of developing a Statewide policy to implement Federal 316(b) requirements (SWRCB website). Ventura County has two power plants that could be significantly impacted by these new regulations, and their ability to continue to use coastal ocean water for once-through cooling. Impacts to ocean aquatic life are unknown.

Recommendation:

Support the investigation of marine impacts from the use of once-through cooling at the two power plants within Ventura County. If impacts are identified through scientifically defensible studies, participate in discussions of ways to mitigate these impacts.

Salinity Management (Both Surface and Groundwater)

The salinity impairment of surface and groundwater is a problem shared by most of California, other arid western states, and much of the developed world. As surface and groundwater supplies

become scarcer, and as wastewater streams become more concentrated, salinity impairments are occurring with greater frequency and magnitude.

All natural waters contain salt and the process of using the water results in waste discharges with elevated salt concentrations. Human waste contains both inorganic salt and organic material some of which breaks down to salt, so salinity in municipal wastewater systems is higher than the water supply. Industrial processes often add or concentrate salt that in turn is disposed of through municipal or individual disposal systems. Salt in water used for irrigation and wetlands is concentrated through evaporation and transpiration.

Sources of salt can be categorized according to the *type* of entity discharging the salt; e.g. from agricultural, municipal, industrial, or natural discharges. Source can also be categorized according to its origin: 1) evapoconcentrate from supply water; 2) addition through dissolution of naturally occurring salts; 3) addition via fertilizers or in food processing, or 4) water treatment processes such as disinfection or softening. Most discharges are likely a mix of all three. For example, an agricultural discharge may contain evapoconcentrated salts from supply water, plus naturally occurring salts from soils from irrigation water is applied and nutrient salts added as fertilizer. In addition, the source of salt may result from a mix of surface and groundwater.

Within Ventura County, management of salinity impairment depends upon development and successful implementation of effective land use, water supply, and water quality policies, in conjunction with the removal of institutional barriers. Salt or salinity is typically used interchangeably with total dissolved solids (TDS) or electrical conductivity (EC). TDS is the dissolved portion of solids in water, including colloidal and small, suspended particles. The major ionic substances in water are calcium, magnesium, sodium, potassium, bicarbonate, sulfate, chloride, and nitrate.

Salt can impact a number of beneficial uses. Agricultural water supplies with elevated concentrations of total salts reduce yield and quality of crops. Individual salts such as boron and sodium can also harm crops. A secondary Maximum Contaminant Level (MCL) has been set for electrical conductivity to protect drinking water supplies and industrial users often have to treat water supplies to protect processes that are sensitive to total salinity and/or individual ions. Elevated salt levels also shorten the useful life of water heaters, pipes, and other water supply systems.

The mix of surface and groundwater interactions, in conjunction with the peculiar geography of California must be considered along with the political, legal, and administrative constraints when determining a long-term solution to the salt problem. The salinity problem is complicated by the presence of an extensive institutional bureaucracy that applies mostly to surface water. In contrast, it is a lack of institutional mechanisms to manage groundwater resources that further complicates the salinity management.

In the Calleguas Creek Watershed, the RWQCB developed pioneering analysis on the subject on salinity impairments that was adapted as the basis for the EPA's chloride TMDL. One of the key findings was that the long-term critical condition for surface water impairment was post-drought maximum non-storm flow. The EPA analysis reasoned that dry weather cycles would subject groundwater basins to enhanced concentration of salts with reduced dilution from rainfall. Subsequent surface water discharge of higher concentrated groundwater following basin replenishment during wet weather cycles would help create high surface water salts concentrations.

The U.S. EPA Region 9 adopted a TMDL for Chloride on March 22, 2002 based largely on the RWQCB's analysis. Because of the unique relationship between wastewater discharges and the broader hydrologic and salts balance in the watershed, the public agencies on the watershed petitioned the SWRCB for a temporary stay in implementing the chloride effluent limits to allow time to work with the RWQCB to "constructively address chloride regulation in the Calleguas Creek watershed and to amicably resolve issues." (SWRCB Stipulation for Further Order Issuing Stay, October 2003, p. 2).

The RWQCB's generalized analysis was extended with additional data to refine the characterization of the mass loadings and surface/groundwater interactions. These investigations are documented in the *Progress Report on Efforts to Address Salts on the Calleguas Creek Watershed* (prepared for the Calleguas Creek Watershed Management Plan, Larry Walker Associates, June 30, 2004). Consistent with the EPA/RWQCB's analysis, the investigation found that salts accumulate in the watershed, but not just under drought conditions. Even during average to slightly above average rainfall years, more salts enter the watershed on an average daily basis through imported water supplies, than are transported off the watershed in surface waters. The *Progress Report* calculated that given the mass balance of the source waters and the recirculation of irrigation waters only about 10 percent of the watershed dry weather average daily salts load entering the watershed leaves via surface water drainage to the ocean. The remaining 90 percent of the salts accumulate until sustained heavy rainfall washes out the accumulated salts.

While wet and dry weather patterns follow a generally cyclical pattern, there can be significant variation in the length of dry weather patterns. The accumulation of salts during these relatively dry periods and the subsequent release during wet weather cycles complicates the instantaneous management of chlorides and salts on the watershed by stockpiling a store of salts that once in solution would exceed the assimilative capacity of other contributing sources to the surface waters. The Camrosa Water District, Camarillo Sanitary District, and City of Thousand Oaks have developed a joint project to address this problem for the southern reaches of the Calleguas Creek Watershed. The project provides for the managed transport of salts through the watershed such that the average daily import of salts is matched by a corresponding export of salts. Over time, this managed transport of the imported salt loading will work in concert with natural processes of rainwater recharge to improve groundwater and surface water quality. The City of Simi Valley, the Calleguas Municipal Water District and Ventura County Waterworks Districts Nos. 1 and 19 are developing a similar salts balance plan for the northern reaches of the Calleguas Creek watershed. The RWQCB is developing a Salts TMDL for the Calleguas Creek watershed based on this conceptual model of working toward a salts balance. The RWQCB expects to adopt the salts TMDL in 2007.

Recommendations:

- Establish groundwater basin salt management objectives
- Support legislation and ordinance that facilitate the removal and/or prohibition of on-site water softening devices
- Support Calleguas Municipal Water District's Brine Line Project
- Support wellhead desalting projects
- Development of local salt management plans/source reduction control programs
- Explore opportunities for a Santa Clara River Watershed brine line

<u>TMDL Development and Implementation</u>

TMDLs are currently required for all waters and pollutants on the 303(d) list. TMDLs must consider and include allocations to both point sources and nonpoint sources of listed pollutants.

Recommendations:

- Participate in various TMDL stakeholders processes and meetings
- Assist in the collection, analysis and assessment of data used in developing TMDLs
- Participate in the development of TMDL implementation plan(s)

Nonpoint Source (See Nonpoint Source for Management Strategies, including Nutrient Management).

Recommendations: See various recommendations under the NPS Section.

Riparian Corridor Buffers (Also see Ecosystem Section for Management Strategies).

Riparian buffer zones are one of the most effective tools available for protecting critical habitat and water quality. The National Resources Conservation Service provides substantial information on the research associated with water quality riparian buffer zones. A standard rule of thumb is that water quality buffer zones should be 30 to 90 feet wide, varying directly with slope. Buffer zones slow water runoff, trap sediment, and enhance infiltration within the buffer zone. Buffers also trap fertilizers, pesticides, pathogens, heavy metals and reduce wind erosion. If properly installed and maintained, they have the capacity to:

- Remove up to 50 percent or more of nutrients and pesticides
- Remove up to 60 percent or more of certain pathogens
- Remove up to 75 percent or more of sediment

Buffers help stabilize a stream and reduce its water temperature. Buffers also have the side benefit of providing a food source, nesting cover, corridors and shelter for wildlife, and a setback distance from agricultural chemical use.

Recommendation:

Support the efforts of various land conservancies, municipalities and landowners in establishing riparian corridor buffers to improve water quality.

Open Space Acquisition/Source Protection (See Ecosystem Section for Management Strategies).

In addition to the protection of riparian corridor buffers, the protection of natural lands at important locations in the watershed through land acquisitions or conservation easements can benefit water quality significantly. Often known as *source protection*, the conservation of smaller feeder streams, meadows, and other upland areas provides additional pollution filtering functions, additional runoff and sediment flow reduction, and creates a mechanism for controlling problematic agricultural runoff through agricultural easement restrictions or outright purchase and retirement of polluting properties.

Recommendation:

Support the efforts of various land conservancies with either the purchase/establishment of conservation easements and/or land acquisitions that improve water quality.

GROUNDWATER QUALITY PROTECTION STRATEGIES

Abandoned Groundwater Wells

Abandoned wells can act as conduits for surface and subsurface pollutants. A successful well abandonment (destruction) project in the Fox Canyon Groundwater Management Area was completed in 2002. However, there are many more wells in need of proper destruction. The County Environmental Health Department, Watershed Protection District and local Cities and water agencies work together to manage water wells and assure proper abandonment.

Recommendations:

Evaluate existing well ordinance No. 3991 to explore whether to strengthen the County's policing authority to enforce the timely destruction of abandoned well is warranted. The revised ordinance should include the following elements:

- Provide the authority to require well destruction or rehabilitation as a condition upon sale of property or change of ownership or change of use.
- Process new well applications only after the applicant has demonstrated that all existing wells on all property they own are not in violation of the well ordinance. Continue to assess penalties if compliance with the ordinance is not met within a reasonable time frame, and assess property liens if compliance with ordinance is not met within a reasonable time frame.
- Working with the Fox Canyon Groundwater Management Agency, the County should prioritize wells for destruction based on degree of potential for groundwater degradation.

Seawater Intrusion/ Hydraulic Injection Barrier Wells Along the South Oxnard Plain

Seawater barrier wells are used extensively in Los Angeles and Orange Counties as a means of controlling seawater intrusion. A barrier project injects water along a series of wells creating a mound of recharge water as protection against seawater moving inland. Barrier wells are both expensive and complex; the costs of maintaining a barrier are higher than for typical facilities in Ventura County such as the Freeman Diversion, spreading ponds, and distribution pipelines. In Los Angeles and Orange Counties, there is a significant component of recycled water in the injected water. Thus, special health regulations govern this type of injection and are a necessary component of plans and facilities. In Ventura County, in the Port Hueneme area, an attempt to construct a seawater barrier in the late 1970s and 1980s by the Department of Water Resources had limited success. Since then, barrier wells have not been considered because lower-cost options were identified and installed. Regional efforts have focused on lower-cost strategies and facilities, such as the Freeman Diversion, the expansion of UWCD's recharge basins, the Pumping Trough Pipeline System, and the Pleasant Valley Pipeline System.

Unfortunately, the lower aquifer system of the south Oxnard Plain and the Pleasant Valley basins have been largely unaffected by spreading operations in the Oxnard Plain Forebay basin. Partially in response to this the City of Oxnard prepared an Advanced Planning Study for the City's Groundwater Recovery Enhancement and Treatment Program (GREAT Program). The Study evaluated barrier wells in the south Oxnard Plain as a method of delivering recycled water during winter months when agricultural irrigation demand is low and as a way to combat seawater intrusion. The City, in partnership with UWCD and the FCGMA, is moving forward with the design

permitting, and construction of the first phase of a recycled water treatment facility, conveyance pipelines, and pilot injection wells system.

Recommendations:

- Support and encourage projects that increase recharge to and/or decrease extractions from intruded aquifers, including the City of Oxnard's GREAT Program.
- Explore the possibility of using treated river water and injecting it into overdrafted basins.
- Support the Fox Canyon Groundwater Management Agency adopted groundwater management plan and GMA Ordinance Code Section 5.3.

Wellhead Protection Program (WHPP)

A Wellhead Protection Program(WHPP) is a pollution prevention and management program used to protect underground sources of drinking water. A national WHPP was established in 1986 by the Federal Safe Drinking Water Act. The law specified that certain program activities, such as delineation, contaminant source inventory, and source management, be incorporated into State WHPPs, and approved by USEPA prior to implementation. In California, the Department of Health Services administers the State's Wellhead Protection/Source Water Assessment Program.

Without adopting any new ordinances or regulations, a WHPP can be successful in protecting water supplies by employing these non-regulatory measures:

- Good housekeeping practices at water sources and at industries, businesses, and homes
- Public education
- Land management to minimize release or runoff of contaminants
- Purchase of land, development rights, or easements
- Man-made systems and devices to prevent release of contaminants
- Emergency response planning

Source Water Protection (SWP) measures are practices to prevent contamination of groundwater and surface water that are used or potentially used as sources of drinking water. These include non-regulatory measures, such as Best Management Practices (BMPs) and regulatory methods.

BMPs are standard operating procedures that can reduce the threats that activities at homes, businesses, agriculture, and industry can pose to water supplies. BMPs, besides protecting water supplies, can sometimes increase the aesthetic beauty and value of residential and commercial properties.

Regulatory measures are appropriate when non-regulatory methods don't work, when the contamination threat is particularly significant, or when Federal, State, or regional regulations aren't strong enough for local issues. Regulatory measures include:

- Land use controls
- Subdivision growth controls
- Zoning
- Land use prohibitions

- Regulations and permits
- Construction and operating standards
- Permit requirements
- Public health regulations

Recommendation:

Develop and Implement a Countywide or Regional Groundwater Wellhead Protection Program. Integrate a strategy into the WHPP to protect, and where feasible, enhance aquifer recharge areas. The Program shall promote smart land use practices, including prohibiting new industrial, commercial and residential development in areas of sensitive groundwater recharge.

Aggregate Resource Management

The mining of aggregate resources from riverbeds can degrade groundwater quality and cause water losses.

Recommendations:

- Strengthen conditions and monitoring capabilities and, if deemed necessary, further restrict the depth to which aggregate can be mined.
- Prohibit certain subsequent land uses and practices of reclaimed recharge areas that would be inconsistent with the protection of groundwater and surface water quality and recharge capabilities.
- Consider revision of the "red line" to reflect the historic high water table (not just the average) and prohibit mining below this line.
- Enhance monitoring and conditional use permit compliance .
- Identify alternative upland mining sites to be developed where feasible, to reduce sand and gravel activities in riverbeds and recharge areas.
- Promote sand gravel mining operations that would enhance recharge, retention for later surface use and as a tool to enhance conservation of river flows when available.
- Promote rock and gravel removal to promote channel “training” to protect banks and to allow flow capacity for future storm flows.

Naturally Occurring Contaminations

Naturally occurring contamination from minerals can render some groundwater basins unusable due to high TDS and nitrate levels. Arsenic, asbestos, radon, minerals, and sometimes microbes and sediment are examples of naturally occurring contaminants for which a pollution prevention approach is obviously infeasible. Furthermore, some contaminants that are concerns specifically for drinking water, such as organic carbon from watershed runoff and bromide — a component of ocean salinity, are a result of natural processes for which a pollution prevention approach may not be possible, effective, or even appropriate (California Water Plan 2005).

Recommendations:

- Identify sources, and develop projects to blend highly mineralized groundwater (if not overdrafted) with existing good quality sources of water to create additional higher quality useable water supplies

- Identify and develop, where practical, desalination or other treatment methods to reduce the mineral content of currently unusable groundwater to improve available water supplies

Salt Management (See above discussion under Surface Water Protection Strategies)

Brownfield Remediation

The California Environmental Protection Agency (Cal/EPA) is active in developing successful brownfields programs that incorporate tools that can be used to assist in or address the three primary concerns of potential developers: legal liability, regulatory compliance, and the financial burden of investigation and cleanup. However, with an estimated 90,000 properties in California that remain idle or underutilized because of real or perceived environmental contamination, it is clear that sufficient public resources could never be allocated to accomplish this goal. California's Brownfields will not be restored to productive use without significant participation by the private sector. Discovering mutually beneficial ways to involve investors in the future of these polluted properties is crucial.

Cal/EPA, and its constituent boards and departments, are developing partnerships with local governmental agencies and actively developing tools and resources that can be used separately and in concert to encourage capital investment in sites to return them to productive use.

Recommendation:

Support efforts to facilitate the remediation of brownfield sites Regionwide including streamlining permitting when possible.

Sewer Collection System Maintenance

As California's wastewater collection system infrastructure begins to age, the need to proactively manage this valuable asset becomes increasingly important. Collection systems consist of pipelines and their appurtenances, which are intended to transport untreated wastewater to both publicly owned and private wastewater treatment facilities. While wastewater treatment facilities are owned by a wide variety of public and private entities, public agencies (State and Federal agencies, Cities, Counties, and special districts) own the vast majority of this infrastructure. Collection systems that transport wastewater to Publicly Owned Treatment Works (POTWs) could be grouped into four different categories:

1. Publicly owned treatment works – pipelines and appurtenances that are owned by a public agency that also owns a wastewater treatment facility.
2. Publicly owned satellites – pipelines and appurtenances that are owned by a public agency that does not own a wastewater treatment facility.
3. Private laterals - pipelines and appurtenances that are not owned by a public agency, but rather discharge into one of the above types of facilities.
4. Privately owned treatment works – pipelines and appurtenances that are owned by a private entity, which also owns a wastewater treatment facility (often a septic tank and leach field).

Collection systems discharging into POTWs represent, by far, the greatest amount of collection system infrastructure within California.

In 2006, the State Water Resources Control Board (State Water Board) adopted Resolution 2006-0003 creating General Waste Discharge Requirements (WDRs) as a regulatory mechanism to provide a consistent Statewide approach for reducing Sanitary Sewer Overflows (SSOs). The General WDRs resulted from a collaborative attempt to create a robust and rigorous program, which will serve as the basis for consistent and appropriate management and operation of sanitary sewer systems.

Data supports the conclusion that virtually all collection systems have SSOs and that implementation of this regulatory measure requiring SSO reporting and collection system management, along with required measures to limit SSOs, will greatly benefit California water quality. Implementation of these requirements will also greatly benefit and prolong the useful life of the sanitary sewer system, one of California's most valuable infrastructure items.

Recommendation:

- Support the development of SSO Management Plans to comply with General SWRCB WDR Order No. 2006-003
- Support the funding of sewer collection system replacement capital improvement programs

Groundwater Monitoring - Groundwater Ambient Monitoring and Assessment (GAMA)

California's political leaders at the local, State and Federal level, as well as private citizens, have become increasingly concerned about groundwater quality and public supply well closures due to the detection of chemicals, such as the gasoline additive MTBE, solvents from industrial sources, and more recently perchlorate. To address these concerns, the Supplemental Report of the 1999 Budget Act and later the Groundwater Quality Monitoring Act of 2001 (AB 599 – Statutes of 2001) required the SWRCB to develop a comprehensive ambient groundwater monitoring plan.

The primary objective of the Groundwater Ambient Monitoring and Assessment (GAMA) Program is to comprehensively assess Statewide groundwater quality and gain an understanding about contamination risk to specific groundwater resources.

The GAMA Program monitors groundwater for a broad suite of chemicals at very low detection limits, including exotic chemicals such as wastewater chemicals and pharmaceuticals. Monitoring and assessments for priority groundwater basins are to be completed every ten years, with trend monitoring every three years.

Recommendation:

Continued support and funding for the GAMA Program, and regional Groundwater Monitoring Programs.

Pollutant/Contaminant removal – Pump and treat local Groundwater

Water in some local basins is contaminated and cannot be used for many beneficial uses. Pumping contaminated water from affected wells and subsequent treatment of that water can augment local water supplies.

Recommendation:

Identify opportunities within each of the Region's groundwater basins and/or aquifers where pump and treat technologies can be utilized to remove pollutant/contaminants, improving water quality and enhancing local water supplies.

Integration with Other Strategies

Water quality improvement efforts can provide benefits to or are related to the following other water management strategies:

- Ecosystem restoration
- Environmental and habitat protection and improvement
- Water supply reliability
- Flood management
- Groundwater management
- Recreation and public access
- Stormwater capture and management
- Water quality protection and improvement
- Water recycling
- Wetlands enhancement and creation
- Conjunctive use
- Desalination
- Imported water
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Possible Funding Sources

Wellhead Protection Program

(weblink: http://www.dhs.ca.gov/ps/ddwem/dwsap/protection.htm)

- Department of Health Services (DHS) Drinking Water State Revolving Fund Program
- DHS Drinking Water Proposition 50 SWP Grants
- CALFED Bay-Delta Program — Watershed Program
- Cyber-Sierra's Conservation District Resource Center — See "Find Funding"
- Department of Water Resources — various funding opportunities
- Great Valley Center — See LEGACI Grants
- State Water Resources Control Board — various funding opportunities
- University of California Sustainable Agriculture Research and Education Program Grants
- US EPA's Catalog of Federal Funding Sources for Watershed Protection Second Edition

- US EPA's SWP Financial Assistance Tools
- US EPA Region 9 Funding Opportunities

Brownfield Remediation:

Financial/Incentive Programs (weblink: http://www.calepa.ca.gov/Brownfields/)

- CLEAN (Cleanup Loans and Environmental Assistance to Neighborhoods)
- FAIR (Financial Assurances and Insurance for Redevelopment)
- Targeted Site Investigation Program
- Underground Storage Tank Cleanup Fund

5.2.13 Water Recycling

Description

Water recycling, also known as reclamation or reuse, is a term which encompasses the process of treating wastewater, storing, distributing, and using the recycled water. Recycled water is defined in the California Water Code to mean "water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur." Reuse can occur on-site or be transferred to other uses off-site following treatment. The uses to which recycled water can be applied (e.g., landscape and agricultural irrigation, cooling, etc.) depend upon the quality of the treated water and the quality required for subsequent uses.

The treatment and use of municipal wastewater for golf course irrigation is an example of water recycling. Higher levels of treatment can make municipal wastewater reusable for school yards, residential landscape and park irrigation, industrial uses or even uses within office and institutional buildings for toilet flushing.

Benefits of Implementation

The primary benefit of water recycling is augmenting water supply. Using recycled water for irrigation can spare high quality potable water for drinking, reducing the overall demand for treated potable water, and thereby conserving water in the Region and the State Given the wide range of local conditions that can affect costs, the majority of applications would cost between $300 and $1300 per acre foot of recycled water.

Costs outside this range are plausible depending on local conditions. Uses that require higher water quality and have higher public health concerns will have higher costs.

When looking at California's overall water supply, recycling provides new water for the State only in areas where wastewater is discharged to the ocean or to salt sink. Recycling in other areas may provide new water for the water agency but does not necessarily add to the State's water supplies. In these locations, discharged wastewater in interior California mixes with other water and becomes source water for downstream water users.

For many communities, an investment in recycled water could also provide other benefits:

1. Provide more reliable local sources of water, nutrients, and organic matter for agricultural soil conditioning and reduction in fertilizer use.
2. Reduce the discharge of pollutants to water bodies, beyond levels prescribed by regulations, and allow more natural treatment by land application.
3. Provide a more secure water supply during drought periods.
4. Provide economic benefits resulting from a more reliable water supply.
5. Improve groundwater and surface water quality and contribute to wetland and marsh enhancement.
6. Provide energy savings; the use of recycled water as a local source offsets the need for energy-intensive imported water.
7. Provide for the necessary aquatic habitat for numerous endangered species in the riverine and esturarine systems.

Existing Efforts

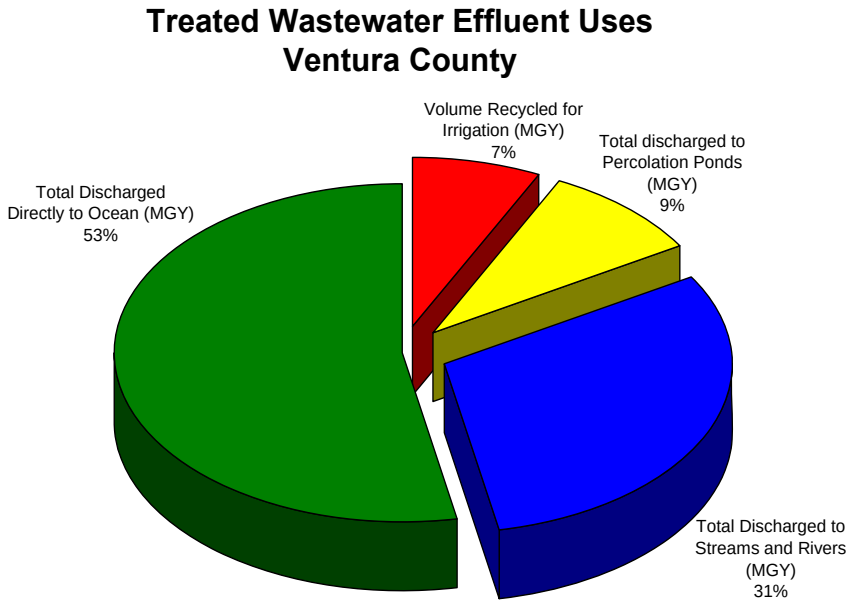
Recycled water in Ventura County holds great potential as an alternative water source and a means to improve water supply reliability. The following discussion of recycled water focuses on treated municipal wastewater. This is wastewater of domestic origin, but includes wastewater of commercial, industrial and governmental origins if such wastewater is mixed with domestic wastewater before treatment. Many industries recycle and reuse their own wastewater.

In the 1980s a feasibility study was conducted to determine the possible distribution of treated effluent from the Simi Valley and Hill Canyon Wastewater Treatment plants for agricultural irrigation on the Oxnard Plain. The finding of this study was that the water was too costly for agricultural customers (at the time) and that there were significant concerns regarding public acceptability of using recycled water to irrigate crops. The local and Statewide drought at the end of the 1980's prompted a re-evaluation of the value of reclaiming this water. As described below, the City of Thousand Oaks Hill Canyon Wastewater Treatment Plant's water is being recycled by Camrosa Water District through the Conejo Creek Diversion.

In the 1990s recycled water provided approximately .5 percent of the Region's water supply. Please see Table 5-1 for information about all wastewater treatment facilities and current recycling efforts. Four of the 16 sewage treatment plants in Ventura County currently reclaim a portion of their effluent. These include the Camarillo Sanitary District Wastewater Reclamation Plant, Camrosa Water Treatment Facility, Moorpark Wastewater Treatment Plant, and the Ventura Water Reclamation Facility. In addition to the facilities located in Ventura County, recycled water is delivered via pipeline from a Los Angeles County treatment plant to Ventura County. Over a third of the Camarillo Sanitary District's effluent is being used for agricultural irrigation. The City of Ventura recycles about 325 million gallons of water per year for landscape irrigation. A joint venture between the Triunfo County Sanitation District of Ventura County allows for recycled water deliveries to Ventura County from the Los Angeles County Tapia Treatment Plant. This recycled water is currently providing irrigation of the Lake Sherwood Golf Course in the Thousand Oaks area. The City of Simi Valley Sanitation District treatment plant continue to seek potential buyers for recycled water.

Pursuant to a SWRCB water right permit granted to the City of Thousand Oaks; and a series of inter-related agreements among the City of Thousand Oaks, the Calleguas Municipal Water District, the Pleasant Valley County Water District, and the Camrosa Water District; Camrosa reclaims the City of Thousand Oaks Hill Canyon Treatment Plant wastewater through operation of the Conejo Creek Diversion immediately south of U.S. Highway 101. In 2005, Camrosa recycled 7862 acre feet or 2561 million gallons per year. In addition, Camrosa recycles all of its treated wastewater from the Camrosa Water Reclamation Facility. This typically amounts to 1650 acre feet per year or 538 million gallons per year. Camrosa has developed an extensive dual distribution system to deliver non-potable recycled supplies while safeguarding its potable water system. Currently, recycled waters account for 42 percent of the water resources available to Camrosa. In addition, Camrosa and the Camarillo Sanitary District have entered into an agreement for Camrosa to purchase and distribute the portion of Camarillo Sanitary District's recycled water not currently served to agriculture. Camrosa uses these recycled water sources to supply agricultural and landscape irrigation demands within its service area. Surplus supplies are delivered to customers outside the District as supplemental water supplies The Moorpark Wastewater Treatment Plant has upgraded to tertiary treatment and is distributing recycled water for golf course irrigation of approximately 100 MGY (million of gallons per year).

Figure 5-4



* Based on 2004 Data

Table 5-1

Ventura County – Tertiary Treatment Plant Information 2006				
Wastewater Treatment Facility	**Total Plant Design Capacity (mgd)**	**Tertiary Design Capacity (mgd)**	**Tertiary Effluent Uses**	**Future Recycled Water Goals**
Moorpark (Dist 1)	3.0	1.5	Irrigation of Moorpark Country Club and percolation pond disposal	Provide tertiary treatment for all wastewater; increase total capacity to 5.0 mgd. Expand infrastructure and provide tertiary water for agricultural and other irrigation uses in lieu of potable water.
Piru (Dist 16)	0.26	--	--	--
Todd Road WWTP	0.06	--	--	--
Santa Paula	2.55	--	--	Currently in process of designing a 4.2 mgd tertiary recycled water plant
Camrosa Water District	1.5	1.5	Irrigation, landscape, CSUCI campus. Leftover released to Calleguas Creek.	Sell all tertiary effluent to customers and discharge in Conejo Creek only during peak wet season; buy additional supplies from Camarillo SD and Hill Canyon WTP
Simi Valley	12.5	0.93	Irrigation, washwater, and dust abatement	Recycled water is delivered to Simi Valley Landfill via Calleguas MWD (0 to 0.5 mgd) Investment in a regional recycled water distribution system including new pipelines and 2 new reservoirs.
Camarillo	6.75	6.75	Irrigation	Increase irrigation usage
City of Ventura	14.0	14.0	~90% discharge into the Santa Clara River Estuary, ~10% to golf course and other uses	--
Montalvo Municipal Improvement District	1.1	--	--	--
Saticoy Sanitary Dist.	0.25	--	--	--
Fillmore	1.33	--	--	Plans for a new 1.8 mgd water recycled water plant in 2009
Oxnard	31.7	--	--	Provide tertiary recycled water to Oxnard and Port Hueneme Water Agency for agricultural use and

				against salt water intrusion (6.0 mgd in 2010; 25 mgd ultimate); receive groundwater recharge credits and build distribution system.
Thousand Oaks / Hill Canyon	14.0	14.0	Irrigation, wetlands, and discharge to Conejo Creek	--

Constraints to Implementation

Major Issues Facing Recycled Water Use Affordability

The cost of recycled water, relative to other water sources, influences how much recycled water is produced for each region. The costs are dependent on the availability of treatable water, demand for treated water, the quality of the source as well as the product water, the type of the intended beneficial use, and the proximity of recycled water facilities to the end users. In addition, the need for disposal brine lines is considered a major issue for some inland agencies. The lack of adequate local funding to plan feasible recycled water projects can slow the construction of new projects. Public funding as well as incentive measures can help advance water recycling for irrigation, making more potable water supply available. Statewide there is a potential of about 0.9 million to 1.4 million acre feet annually of additional water supply from recycled water expected by the year 2030.

Major Issues Facing Recycled Water Quality

Salinity of domestic wastewater is always incrementally higher than that of the potable supply received by system customers as a result of ordinary use. In areas with higher mineral concentrations in the potable supply, which is common in many areas of Ventura County, wastewater salinity is further increased by the use of softeners and other point-of-use treatment. Both general increases in mineral concentrations and increases in specific mineral constituents such as Chloride, Sodium and Boron, can make recycled wastewater unsuitable for direct reuse for many purposes without further treatment. These advanced treatments generally result in higher costs and the need for management of brine concentrates as noted above.

Major Issues Facing Competing Uses for Recycled Water

In many cases, notably for the Ojai Valley Sanitary District and the City of Ventura, in-stream uses of wastewater effluents for habitat maintenance may limit the availability of recycled water. Expansion of recycled water use must carefully consider the potential environmental impacts of removal of flow from current receiving waters. The City of Ventura and the Ojai Valley Sanitary District are also conducting feasibility studies of the potential for recycling of portions of the effluent from the Ojai Valley Sanitary District Plant in the Ventura River Watershed.

Related Documents and Websites

California Department of Water Resources, Recycling Programs and Information
http://www.owue.water.ca.gov/recycle/

Local Urban Water Management Plans

Water Recycling 2030, California Recycled Water Task Force
Report, 2003.

SWRCB, California Municipal Wastewater Reclamation
Survey, 2003.

Water Recycling 2000, California's Plan for the Future.

State Water Conservation Coalition, Reclamation/Reuse Task Force and the Bay Delta Reclamation Sub-Work Group, 1991.

Southern California Comprehensive Water Reclamation and Reuse Study, Phase II. Final Report (Draft), 2000.

Other reports such as DWR Water Recycling Survey, 1993; California Water Plan Update 1998.

Recommended Future Projects or Actions

Many local agencies currently treat wastewater so that it can be recycled for non-potable uses such as irrigation of golf courses, street medians, school athletic fields, and dust abatement. There are a number of issues that local agencies must consider when developing recycled water projects. These include economic, financial, institutional, regulatory considerations, water quality, seasonal demands, and public acceptance. Implementation of recycled water projects helps improve water supply reliability and frees up potable water for other uses. Much more can be done, both locally and at the State level, to increase the use of recycled water.

The California Water Plan Update 2005 includes the following recommendations for increasing water recycling on a Statewide level:

1. State and local agencies and various stakeholders should actively follow up with the implementation of the Recycled Water Task Force recommendations as they constitute a culmination of intensive study and consultation by a Statewide panel of experts drawing upon the experience of many agencies. Such recommendations provide advice that can be used as a toolbox for communities to improve their planning of recycled water projects. (Implementing parties: State and local agencies and various stakeholders)

2. Funding should be increased beyond Proposition 50 and other sources toward sustainable technical assistance and outreach, advanced research on recycled water issues, and adequate water reuse/recycling infrastructure and facilities. (Implementing parties: Federal, State, and local agencies)

3. The State should encourage an academic program on one or more campuses for water reuse research and education; develop education curricula for public schools; and encourage institutions of higher education to incorporate recycled water education into their curricula. (Implementing parties: State and academic institutions)

4. Agencies should engage the public in an active dialogue and participation using a community value-based decision making model (determining what a community values, then making decisions based on that information) in planning water recycling projects. (Implementing parties: State and local agencies)

5. State should create uniform interpretation of State standards in State and local regulatory programs and clarify regulations pertaining to water recycling including: health regulations, permitting procedures, cross-connection control and dual plumbed systems. (Implementing parties: State agencies)

Future Water Recycling Plans - Local

At the local level, a variety of recycled water projects are in the planning stages and awaiting funding. Funding for some of these projects has been identified.

The City of Simi Valley/Ventura County Waterworks District No. 8 is currently updating the Simi Valley County Sanitation District Reclamation Facilities Plan (Engineering Science, 1992). The Plan will further describe recycled water opportunities.

The City of Oxnard is implementing its Groundwater Recovery Enhancement and Treatment (GREAT) program. The City of Oxnard's GREAT Program includes the construction of the Advanced Water Purification Facility (AWPF), a recycled water membrane treatment facility, that will provide high-quality recycled water for industrial processes, landscape irrigation, agricultural irrigation, and for groundwater injection, as a seawater intrusion barrier. The use of recycled water for industrial processes or landscape irrigation will directly offset the use of blended potable water that the City would have had to produce or purchase. The use of the recycled water for agricultural irrigation, with corresponding pumping cutbacks by farmers receiving the recycled water, or groundwater injection will result in FCGMA credits to the City. The City will then be able to pump groundwater from wells less vulnerable to seawater intrusion or purchase groundwater from UWCD.

The GREAT Program also involves one or more desalter facilities, that will remove dissolved minerals from the pumped groundwater, in order to maintain blended water quality. Brine concentrates from the desalters will be initially conveyed through the City's wastewater collection system to the City's Wastewater Treatment Plant, and will be discharged to the ocean, via the plant's ocean outfall, along with the normal plant effluent. Eventually, the GREAT Program involves the construction of a separate brine concentrate conveyance system. The GREAT Program's AWPF Project involves the creation of a demonstration scale treatment wetlands to remove contaminants from the brine concentrate produced by the membrane treatment process. If successful, the City may seek regulatory approval to provide the wetlands-treated brine concentrate to the Coastal Conservancy for use in reestablishing the adjacent Ormond Beach Wetlands. The Blending Station No. 1 Desalter is currently under construction. The AWPF Project, Phase I, which will produce 6.25 mgd of recycled water, is in final design, and is expected to be completed in early 2010.

Desalination concentrates will be conveyed through the Brine Line to enhance wetlands in the Ormond Beach area. The M&I projected yield from the first phase of this project is approximately 1250 acre feet per year by the year 2010.

VCWWD No. 1, the City of Thousand Oaks, the Camarillo Sanitary District, and the Camrosa Water District plan on recycling all of their wastewater, while the Triunfo Sanitary District plans to continue to reclaim a portion of their treated effluent.

The City of Ventura operates the Ventura Water Reclamation Facility (VWRF) which provides recycled water for irrigation on City and private landscaping, and also to several local golf courses. The remaining treated effluent is discharged into the Santa Clara River Estuary. The City plans to expand use of recycled water for landscape irrigation from 871 acre feet per year in 2005, to 3971 acre feet per year by the year 2025 (Urban Water Management Plan Update 2005). Over 7000 acre feet per year is currently discharged into the Estuary for wetland enhancement.

The City of Ventura and the Ojai Valley Sanitary District are also conducting feasibility studies of the potential for reclamation of portions of the effluent from the Ojai Valley Sanitary District plant in the Ventura River Watershed.

Integration with Other Strategies

Implementation of water recycling projects has the potential to benefit the following other water management strategies:

- Ecosystem restoration
- Environmental and habitat protection and improvement
- Water supply reliability
- Groundwater management
- Recreation and public access
- Water conservation
- Water quality protection and improvement
- Wetlands enhancement and creation
- Conjunctive use
- Imported water
- Land use planning
- Surface storage
- Watershed planning
- Water and wastewater treatment

Possible Funding Sources

- State and Federal grants
- Local funding

5.2.14 Water Supply Reliability

Description

A primary mission of a water agency is to assure a reliable supply of water to local water users (customers). In general, reliability means that, under any circumstance, including prolonged droughts or emergencies, the supply of water will be adequate to meet the needs of customers. In order to determine whether a region's water supply is reliable, local agencies must evaluate the current and projected safe annual yield of all water sources, determine the current and projected annual demand of all users, and establish an approach that conjunctively manages supplies, monitors and protects water quality and develops new supplies when shortfalls are projected. In order to maintain or improve a region's reliability, its management portfolio must be diverse, including a broad range of water supply options, and water management actions and strategies.

The Urban Water Management Planning Act (Act) contained in California Water Code Sections 10610 through 10650, requires that "every urban water supplier shall prepare and adopt an Urban Water Management Plan". Urban water supplier is defined as "a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually". Water supply reliability is an important element of these plans. All the urban water agencies in Ventura County that fall under this provision, have prepared and adopted such plans, which are updated every five years.
In addition, several water agencies in Ventura County participated in an Integrated Resource Plan (IRP) developed by the Metropolitan Water District of Southern California in 1996 (updated in 2003). Through the IRP process, regional targets were established for the development of water resources including water conservation, water recycling, desalination, Colorado River deliveries, State Water Project (SWP) deliveries, water transfers, and storage in groundwater basins and surface reservoirs. That effort complements this IRWMP process, whereby local programs and projects are identified to implement water resource strategies thereby maintaining and/or improving water supply reliability in Ventura County, and indeed, in Southern California.

See Bibliography for additional information on these plans.

Background and Existing Efforts – Local and Statewide

Each water supply source (i.e., imported water, local groundwater, etc.) has its own reliability characteristics. In any given year, the variability in weather patterns around the State may affect the availability of supplies. Many agencies throughout California rely on groundwater during extended dry periods, when surface or imported water sources are less available, and rely more on imported State Water supplies during periods when Northern California has wetter conditions. Over the years, many areas have contracted with the State to deliver imported water from the SWP, which supplements local surface and groundwater supplies and improves reliability of water service to customers. This pattern of "conjunctive use" has been common practice in many parts of the State. However, natural variability in SWP supplies affects the ability of those agencies that lack sufficient storage or local supplies to meet water demands for their service areas. The reliability of Ventura County's main sources of supply, imported water and local groundwater, is discussed in greater detail below.

Imported State Water Supplies

Ventura County's local water resources are not of sufficient supply or quality to meet existing water demands. As such, imported water from the State Water Project is conveyed over 500 miles from Northern to Southern California through an elaborate system of reservoirs, aqueducts, and pump stations. Water is filtered and disinfected at Metropolitan's Joseph Jensen Filtration Facility in Granada Hills. The Calleguas Municipal Water District (Calleguas) receives the treated water from Metropolitan Water District (Metropolitan) and either stores the water in Lake Bard to be treated later, or distributes it among 23 retail purveyors throughout Ventura County. Imported water accounts for 25 percent of the water utilized in Ventura County. But because local agencies blend imported water with groundwater in order to meet water quality standards, imported water is received by over 75 percent of the population (550,000 people), including businesses, and some agriculture. In addition, the United Water Conservation District (UWCD), Casitas Municipal Water District (Casitas MWD) and the City of Ventura hold entitlements to a total of 20,000 AFY of additional SWP supplies. Such imports are only arranged by UWCD when conditions are appropriate to facilitate storage and aid in basin management (i.e., preventing the spread of groundwater contaminants).

State Water Project deliveries vary annually with contractor demands and projected water supplies from tributary sources to the Delta, which are based on snow pack in the Sierra Nevada, reservoir storage, operational constraints, and demands of other water users. Historically, the SWP has been able to meet all contractor requests for water except during the drought years (such as1977, 1991-92, and 1994). In many years, surplus water has been delivered to contractors. Deliveries to Metropolitan reached a high of 1,396,000 AF in calendar year 1990 prior to the drought of the early 1990s.

DWR reports in its 2005 SWP Delivery Reliability Report that existing SWP contractors will on average receive 69 percent of their full contracted (Table A) amount for 2005 demand conditions and 77 percent of their full Table A amount for 2025 demand conditions. Table A amount (formerly referred to as "entitlement") is named for "Table A" in each SWP Contractor's Water Supply Contract. It contains an annual buildup in Table A amounts of SWP water, from the first year of the Water Supply Contract through a specific year, based on growth projections made before the Water Supply Contract was executed. For most Contractors, the maximum annual Table A amount was reached in 1990. The total of all SWP Contractors' maximum Table A amounts is currently about 4.17 million acre feet per year.

Local Groundwater

In the Calleguas Creek Watershed, retail-level water purveyors rely on a combination of imported water and groundwater to meet demands. Though considered a "supplemental" supply, imported water now serves as a primary water source for cities in the watershed. The actual proportion of import to groundwater varies with the availability of State Project Water and the amount and quality of groundwater available. Often imported water is blended with local groundwater to provide better water quality. Over the past century, a combination of increasing urban and agricultural activities in the area has caused groundwater overdraft, seawater intrusion, and groundwater contamination within the region.

To ensure reliability of local groundwater supply, most of the groundwater basins in the Region are managed. The Fox Canyon Groundwater Agency (FCGMA) and United Water Conservation District (UWCD) are the two largest entities focused on groundwater conservation and management. A majority of the water purveyors in the County pump groundwater from a basin managed or

monitored by one of these two agencies. Those that pump from other basins have developed, or are currently preparing, groundwater management plans to assist in maintaining the reliability of their local groundwater supply. Operation of UWCD's Freeman Diversion Project is critical in maintaining groundwater levels beneath the Oxnard Plain.

Other basins are also being addressed. The Santa Paula Groundwater Basin is adjudicated and has its own plan to address reliability. There is also a groundwater management plan for the Ojai Groundwater Basin.

Water Reliability Strategies

In areas of the State where source water (county of origin) is high quality and plentiful, reliability is measured against population growth and general demand forecasts. However, other areas must contend, not only with growth, but also with the variability of supplies. Groundwater is vulnerable to overdraft and contamination, particularly to seawater intrusion in coastal regions. Surface water is subject to hydrologic/weather conditions, such as drought, pollution and environmental constraints, as it also serves as habitat for various species. The reliability of Ventura County's main source of imported water, the State Water Project, is threatened on several fronts, due to its passage through the Sacramento San Joaquin Delta. According to DWR, the levees, upon which the SWP relies to convey water south, have a 66 percent chance of catastrophic failure in the next 50 years due to seismic and flood risks in the region. In addition, declines in Delta fish populations and Delta water quality limit the export capacity of the SWP.

To address these uncertainties, water agencies are working to diversify the water resources mix so that regions are less dependent on a single source of supply.

Reliability strategies include investments in following: conjunctive use, groundwater management, conservation, recycling, desalination (brackish & ocean), water transfers (North/South limited to SWP/Banks pumping capacity), interconnection of adjacent systems where these do not now exist, and investments across watersheds that can provide system redundancy and allow for conjunctive use of local resources.

In general, water purveyors import water to meet the difference between demand and available local water supply (i.e., groundwater and recycled water). Therefore, the reliability and delivery of the imported water is vital to ensuring these demands are met. Furthermore, for many of the water purveyors, imported water also serves as a means for blending with local groundwater supply to meet water quality standards.

With the variability of surface water and groundwater supplies and potential uncertainty about the availability and cost of imported water, managing the quantity of water in Ventura County is critical. By increasing use of local supplies and reducing dependence on imported water, water supply reliability can be enhanced. As seen in Metropolitan's IRP process, one of the goals of implementation of water management strategies is the enhancement of water supply reliability. Examples of some of these strategies and their ability to impact reliability are discussed below. Details regarding some of the projects mentioned herein are provided in Section 6.

Conjunctive Use

Conjunctive use refers to the planned joint use of surface and groundwater to improve the reliability, economics and firm yield of the total water resource. It allows water managers to take advantage of occasions when certain supplies are more plentiful than others and includes the use of recycled water, conservation, and other measures employed to maximize the water supply to meet present and future needs.

One example of using a conjunctive use strategy is Calleguas' Las Posas Basin Aquifer Storage and Recovery (ASR) project. The Las Posas Basin ASR project is designed to provide for subsurface storage of up to 300,000 acre feet of imported water. The completion of the Las Posas ASR Project will improve water supply reliability by storing (excess) imported water in the Las Posas groundwater basin during the wetter winter months. This supply will be available to the region in times of drought or emergency, when SWP supplies may be interrupted or limited.

Conjunctive use allows for the management of groundwater to reduce dependence on less reliable imported water.

Efficiency (Conservation)

Water use efficiency is an important means to improve reliability. Ongoing water use efficiency programs being implemented by local water agencies are described in their Urban Water Management Plans and in updates to the California Urban Water Conservation Council by agencies which have signed the Memorandum of Understanding for Urban Water Conservation.

Water use efficiency programs help extend local supplies and augment reliability.

Groundwater Management

As described in detail in the Draft Fox Canyon Groundwater Management Agency's Groundwater Management Plan, and in other groundwater management plans and in the Urban Water Management Plans, there are efforts underway to better manage local groundwater resources to improve reliability. For example, Ventura County Waterworks District No.1 and Calleguas are considering a project to pump and treat water from the South Las Posas Basin. Treatment of this water is necessary to reduce total dissolved solids and chloride concentrations to acceptable levels. 5000 acre feet per year of water could potentially be developed from this source that would not otherwise be usable. Also, the United WCD has, for many years, been enhancing groundwater supplies through recharge projects.

By pumping and treating groundwater for potable use in lieu of using imported water, water supply reliability would be increased and reliance on the use of imported SWP water would be reduced.

Water Recycling

Several local jurisdictions are studying or implementing recycling projects which enhances reliability due to the predictability and drought-proof nature of recycled water. The Cities of Ventura and Oxnard, and the Camrosa Water District are a few of the agencies already implementing substantial recycling efforts. The Ventura County Water Works District No. 1 (VCWWD No. 1) is proposing to expand their recycled water system to provide recycled water for use at agricultural and/or additional landscape irrigation sites in the VCWWD No. 1 service area.

By making recycled water available for non-potable uses, another drought-proof and constant source of water is created for some users. In addition, other potable supplies are made available for potable purposes. The result is improved use of local supply, increasing water supply reliability and reducing dependence on imported SWP water.

Brine Disposal

Calleguas is developing a brine line project that will be used to convey reverse osmosis concentrates and other acceptable brines from Simi Valley, Moorpark, Camarillo, and Camrosa to an ocean outfall for disposal. Development of this project will allow agencies in proximity to the brine line to develop groundwater treatment projects that can further enhance the yield of local water supplies.

By providing brine disposal from desalting of brackish groundwater, the brine line allows the local groundwater to be used for beneficial potable and agricultural use, thus increasing water supply reliability and reducing reliance on the use of imported SWP water.

Desalination

There are several proposed desalination projects in Ventura County, focusing on treatment of brackish water. One example is the Camarillo Groundwater Treatment Facility project involves the construction of a four million gallon per day brackish groundwater treatment facility. The facility would be located in Camarillo and be owned by the City. Reverse osmosis (RO) treatment technology would be used to produce potable quality water. Brine waste, containing concentrated salts from the RO process, would be discharged to the brine line and exported out of the Watershed. Other examples are the Moorpark and Somis desalters.

The construction of desalters, like the Camarillo Groundwater Treatment Facility, would allow brackish water that is currently unusable to be used beneficially, increasing water supply reliability and removing salts through brine disposal outside of the Watershed.

Stormwater Management

The Conejo Creek North Fork -Wildwood Park Water Management Enhancement Project (Wildwood Project) would improve approximately 2900 feet of the North Fork of Conejo Creek. The objectives of the project are: to enhance and create wetland habitat; restore a portion of the Conejo Creek Watershed; provide for stormwater capture; increase groundwater recharge and infiltration; and improve water quality from stormwater runoff of the surrounding housing area.

By detaining stormwater flows, the Wildwood Project would enhance groundwater recharge and infiltration and improve the quality of recharged flows, thus increasing water supply reliability and reducing reliance on the use of imported SWP water.

Water Transfers

One of the primary goals of Metropolitan and its member agencies is to develop additional reliability through the California Aqueduct by purchasing out-of-region storage for SWP water and SWP water transfers. Metropolitan's IRP calls for developing a total of 460,000 AF of dry-year storage and water transfer deliveries by 2020. Metropolitan has developed groundwater storage programs with Semitropic Water Storage District and Arvin-Edison Water Storage District, which together will provide up to 245,000 AFY during dry years.

Another example of a local water transfer program is the Calleguas and United Water Conservation District's Supplemental Municipal & Industrial (M&I) Program. Up to about 4000 AF per year of water could be delivered under this Program, depending on groundwater conditions and availability, by allowing customers who buy water from both Calleguas and UWCD to utilize

Calleguas' GMA credits to receive supplemental water from the surplus in the Oxnard-Hueneme system.

Water transfers allow for movement and storage of surface water, groundwater, and "paper water" in order to maximize current supplies and increase the reliability of future supplies.

Blending

Blending refers to the mixing or "blending" of local groundwater supplies with imported surface water to balance water quality and cost. A number of agencies within Ventura County blend their supplies for this purpose, including the Cities of Oxnard (50-50 blend), Camarillo, Moorpark, Simi Valley, and Camrosa Water District.

Blending groundwater not suitable for potable uses increases its water quality and allows the local groundwater to be used for beneficial potable and agricultural use, thus increasing water supply reliability and reducing reliance on the use of imported SWP water.

Benefits of Implementation

The overall benefit of water supply reliability is the increased probability of being able to meet the water demands within the Region and help protect the purveyors' service areas from droughts and emergencies through development of reliable local resources.

Increased reliability through local supply development offers benefits, not just to local resources and habitat, but to the Bay-Delta ecosystem, where the imported water supply originates and to other water users within the region. Increased reliability also offers economic benefits by allowing for flexibility in management of local resources which helps in their cost-effectiveness, and has water quality benefits from strategies that address TMDLs.

Furthermore, implementation of these reliability strategies is an important aspect in the maximization of benefits, especially since water quality and water quantity issues for the Region must be addressed at the watershed level. The coordination and collaboration efforts of the Region's stakeholders and regulatory agencies allows for the implementation of projects that would benefit the entire Region, not just one agency's service area or one population.

Constraints to Implementation

Interdependence is key to the success of these strategies. That is, water supply reliability cannot truly be achieved unless the dependence on imported water is reduced. Similarly, the individual strategy objectives require the coordination and regional planning efforts developed through the process of increasing water supply reliability. Finally, the reduction in imported water cannot occur until the local water supply is being used most efficiently. This requires increasing local water supply reliability and improving local water quality.

Related Documents and Websites

Documents

Urban water supply reliability issues are addressed specifically in agencies' Urban Water Management Plans which are required to be updated every five years. A number of local agencies are required to comply with this law based on their size (over 3000 AF of water served to M&I

customers, or over 3000 M&I service connections). Calleguas, Metropolitan, the Cities of Camarillo, Fillmore, Oxnard, Thousand Oaks and Ventura, the Camrosa Water District, the Casitas Municipal Water District and VCWWD No. 8 have all prepared 2005 UWMPs that are available electronically from the individual agencies.

In addition, Metropolitan's 1996 IRP and the Report on Metropolitan's Water Supplies have recently been updated. The 2003 Update of the IRP was intended to provide a review of resource development goals and current levels of achievement relative to the 1996 report, identify significant changed conditions that may affect water resource development relative to the 1996 report, and evaluate the reliability of the preferred water resource mix (adjusting targets as necessary to reflect changed conditions and extending the projections through 2025.) The 2003 Update is available on Metropolitan's website.

Other helpful documents include the CALFED Programmatic Record of Decision (ROD), reflecting the long-term plan for the Bay-Delta and goal of increasing the reliability of SWP dependent on the Bay-Delta resources; and the California Water Plan 2005 Update (Bulletin 160-05) which provide resource management strategies to help local agencies and governments manage their water and related resources within the State.

Web Resources

- Information regarding urban water management plans: http://www.owue.water.ca.gov/urbanplan/index.cfm
- Metropolitan Water District of Southern California's IRP: http://www.mwdh2o.com/mwdh2o/pages/yourwater/irp/integrated01.html
- California Bay-Delta Program, Record of Decision: http://calwater.ca.gov/Archives/GeneralArchive/RecordOfDecision2000.shtml

Recommended Future Projects or Actions

Agencies within the Region covered in this IRWM Plan have identified objectives and priorities with the purpose of assuring a reliable supply of water. Specific management strategies and projects have been included which will be developed or enhanced in order to continue to assure a reliable supply for local communities.

These projects include water recycling, desalination, conjunctive use, and water transfers. Each of these water management strategies are discussed in more detail in the remainder of this section. Individual projects are discussed in Section 6.

Integration with Other Strategies

Maintenance and improvement of water supply reliability is dependent on many of the water management strategies contained in this IRWMP as follows: Water Supply Enhancement.

- Groundwater management
- Water conservation
- Water quality protection and improvement
- Water recycling
- Conjunctive use
- Desalination

- Imported water
- Land use planning
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Possible Funding Sources

- State and Federal funding
- Grant funding
- Current and future bond funding
- Water rate increases
- Incentive Payments

5.2.15 Water Transfers

Description

Excerpt from the California Water Plan Update 2005

A water transfer is defined in the Water Code as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer or exchange of water or water rights. Many transfers, such as those among contractors of the State Water Project or Central Valley Project, do not fit this definition. A more general definition is that water transfers are a voluntary change in the way water is usually distributed among water users in response to water scarcity. Transfers can be from one party with extra water in one year to another who is water-short that year. (Source: California Water Plan, Section 2, Chapter 23)

Transferring water supplies, or water rights, from one area to another is an important tool for water management in California, particularly agriculture to urban transfers. Eighty percent of the water made available through the State Water Project goes to agricultural users. Urban use accounts for less than twenty percent. It came as no surprise when transfer activity increased substantially during the drought of the late 1980s and early 1990s, especially through the State-run Drought Water Bank. The Bank was flush with water made available from agricultural users. In recent years, according to the Department of Water Resources, water transfers have increased Statewide from 80,000 acre feet in 1985 to 1,250,000 acre feet in 2001.

The following information is an excerpt from the California Water Plan 2005, Section 2, Chapter 23:

> *Transfers can be between water districts that are neighboring or across the State, provided there is a means to convey and store the water. Water transfers can be a temporary or permanent sale of a water right by the water right holder; a lease of the right to use water from the water right holder; or a sale or lease of a contractual right to water supply. Water transfers can also take the form of long-term contracts for the purpose of improving long-term supply reliability. Generally, water is made available for transfer by five major sources:*
>
> 1. *Transferring water from storage that would otherwise have been carried over to the following year. The expectation is that the reservoir will refill during subsequent wet seasons.*
> 2. *Pumping groundwater instead of using surface water delivery and transferring the surface water rights.*
> 3. *Transferring previously banked groundwater either by directly pumping and transferring groundwater or by pumping groundwater for local use and transferring surface water rights.*
> 4. *Making water available by reducing the existing consumptive use through crop idling or crop shifting or by implementing water use efficiency measures.*
> 5. *Making water available by reducing return flows or seepage from conveyance systems that would otherwise be irrecoverable.*

One of the primary goals of Calleguas Municipal Water District (Calleguas), through Metropolitan, is to develop additional reliability through the California Aqueduct by purchasing out-of-region

storage for State Water Project (SWP) water and SWP water transfers. In Ventura County, water transfers can be classified first with respect to whether it's from outside the County with imported water, or within the County. Transfers within the County can occur between groundwater basins and watersheds. To date, most water transfers have been within the County and are closely linked with local groundwater management strategies. The Fox Canyon Groundwater Management Agency (FCGMA) is a Special District that manages groundwater in the southern portion of Ventura County and has overseen this activity.

Benefits of Implementation

Water transfer benefits can be realized generally in the following areas:

- Water supply enhancements
- Improved water reliability
- Water quality improvements
- Groundwater safe yield management
- Economic benefits to buyer and seller

Moving or transferring water from one groundwater basin to another can be beneficial to groundwater pumpers in both basins, if such transfers are handled properly. There are groundwater basins in the County that are filled to capacity, primarily because the water is non-potable. South Las Posas groundwater basin on the east side of the County is an example. Transferring water from a full basin to serve users that overlie an overdrafted aquifer, like Pleasant Valley farmers adjacent to the Oxnard Plain, produces an obvious benefit. Pumping reductions in the overdrafted basin will help provide for safe yield management. Furthermore, local water is being utilized, which keeps pressure off of the State's imported water system.

There are also economic benefits associated with such water transfers. The cost of groundwater is typically a factor of three less than imported State Project Water. There are also over-pumping penalties in place by the Fox Canyon Groundwater Management Agency equal to the cost of treated imported water. Transferring water from outside the County from the State Water Project has the advantage of providing water of very good quality. Used in combination with other management strategies, like conjunctive use, the County can manage its many water quality challenges. There are economic benefits with this as well, if the cost of local treatment far outweighs the cost of transfer water. Calleguas purchases water from Metropolitan which uses a tiered rate structure. There are opportunities for Calleguas to transfer water at a cost that is less than Metropolitan's higher tiered price (Tier 2).

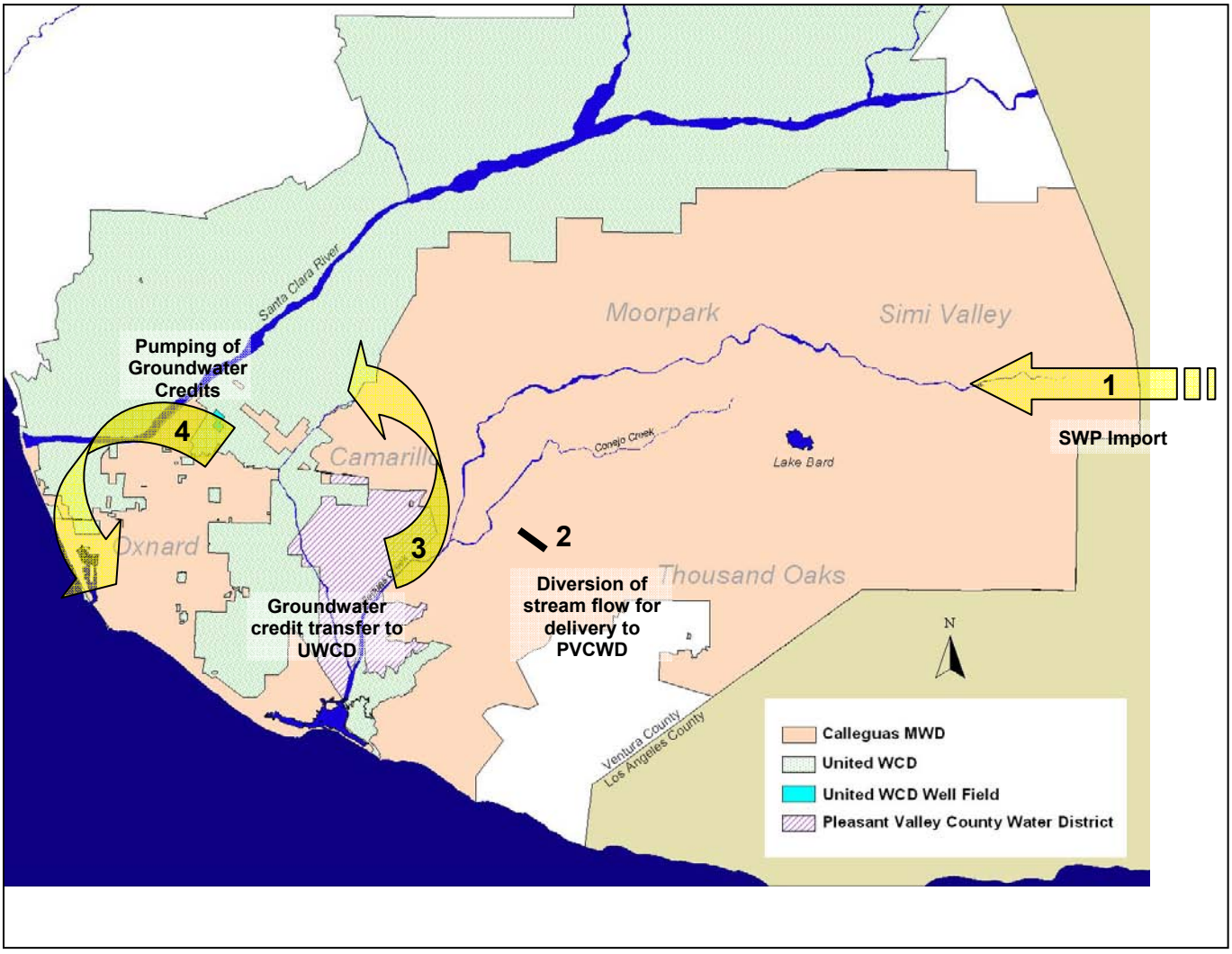
Existing Efforts

Water Transfer Between Watersheds

An excellent example of a successful water transfer in the County involves cooperation between multiple agencies in two watersheds. Flows in the Conejo Creek in the Calleguas Creek Watershed are dominated by high quality wastewater flows from the city of Thousand Oaks; a city that relies on imported State Project water for all of its supply. Consequently, flows in the creek are classified by the Fox Canyon Groundwater Management Agency (FCGMA) as "foreign water" since they originated outside the County.

Calleguas purchases this high quality wastewater from the City of Thousand Oaks. Calleguas

then sells water to Camrosa Water District. A downstream diversion structure owned and operated by Camrosa diverts water from Conejo Creek to provide a non-potable water source for agricultural and landscape irrigation within its service area. Flows are also diverted to a pipeline and pump station operated by Calleguas for sale to a large agricultural agency, the Pleasant Valley County Water District. Because Pleasant Valley is a large groundwater pumper in an over-drafted area, they reduce pumping by an amount equal to the Conejo Creek water diversion. Procedures developed by the FCGMA allow Calleguas to accrue an acre-foot for acre-foot groundwater credit. That groundwater credit is then transferred out to the United Water Conservation District (UWCD) in the Santa Clara River Watershed where it can be pumped from the Oxnard Forebay when conditions permit. UWCD then pumps that water and sells it to the UWCD Oxnard-Hueneme Pipeline System customers, including the City of Oxnard, Port Hueneme Water Agency, and several small mutual water companies, to help meet potable demands.. Since the City of Oxnard and Port Hueneme Water Agency utilize imported and local water, they are able to reduce import demands and take advantage of the lower priced water supplied by UWCD. This approach is supplying up to 4000 acre feet to all participants.



Central Valley Water Transfer

UWCD and Calleguas are exploring a water transfer from the Central Valley that would utilize UWCD's system to convey water to the Oxnard Plain. Water conveyed from the California Aqueduct to Lake Pyramid would be released from Pyramid Dam and flow 10 to 12 miles down Piru Creek until entering the upper headwaters of Lake Piru which is owned and operated by UWCD.

From Lake Piru, UWCD would release an equivalent amount of water from Santa Felicia Dam (at Lake Piru), and allow that water to flow down the Santa Clara River. UWCD would then divert flows 12 miles downstream from Lake Piru at the Vern Freeman Diversion facility. Water captured at the Freeman Diversion can be sent to farms east of the river or placed into groundwater recharge ponds adjacent to the river in what is called the Oxnard Plain Forebay Groundwater Basin.

Constraints to Implementation

Water transfers are typically unique. But the elements associated with a successful transfer are common to most and include:

- A willing buyer and seller
- Available conveyance capacity
- Point-to-point wheeling charges, including power costs
- Water quality requirements
- Institutional constraints
- Environmental constraints
- Third-party impacts

Care must be taken in any proposed transfers that would adversely affect riparian vegetation, wetlands, wildlife habitat or other aspects of the natural environment. State law prohibits transfers that would have an unreasonable impact on fish, wildlife or other in-stream uses; therefore, the State Water Resources Control Board cannot approve such transfers (Water Code Section 1025.5(b), 1725, 1736). The 1992 CVP Improvement Act (P.L. 102-575) prohibits transfers that significantly reduce the quantity or quality of water available for fish and wildlife. Similarly, public agency facilities cannot be used to convey transferred water if fish, wildlife or other beneficial in-stream uses are unreasonably affected or if the overall economy or environment in the county where the water originates would be unreasonably affected (Water Code Section 1810(d)). State and Federal endangered species laws may prohibit harm to particular plants, animals or habitat. Thus, a proposal to conserve and transfer runoff, tail water, or seepage water may be barred by the legal protections accorded to the plant and animal beneficiaries of the prior "inefficient" use.

One of the most important considerations is the protection of the rights of others not involved in the transfer, thus avoiding third-party impacts. Recent practice has tended to place the burden of proof that no harm will be done on the transfer proponents.

Related Documents and Websites

Urban Water Management Plans

The California Department of Water Resources (DWR) description of water transfers in California: http://www.watertransfers.water.ca.gov/

Excerpts from the California Water Plan, 2005 describing water transfers, oversight, etc.: http://www.waterplan.water.ca.gov/docs/cwpu2005/Vol_2/V2PRD23_watertrans.pdf#search='water%20transfers'

State Water Project – Translating Concepts into Reality, 1993 (includes definitions and terms): http://www.swpao.water.ca.gov/transfers/index.cfm

Recommended Future Projects or Actions

Water transfers will undoubtedly play a major role in Ventura County's water future; however, most transfer activity has been carried out between specific water suppliers. For the most part, uniform criteria and procedures have not, been developed and accepted for general use where water transfers are concerned. Some common truths and observations learned from past water transfers:

1. Every deal is unique and must be evaluated separately; however, there are some principles that are common to most proposals.
2. Every evaluation requires some degree of informed judgment about hydrologic reality.
3. Prospective water sellers and water operators often have differing views of hydrologic reality.
4. Care must be taken to avoid unintended reductions in the supplies of water users who are not parties to the transfer.

Integration with Other Strategies

- Ecosystem restoration
- Environmental and habitat protection and improvement
- Water supply reliability
- Flood management
- Groundwater management
- Recreation and public access
- Stormwater capture and management
- Water quality protection and improvement
- Water recycling
- Conjunctive use
- Desalination
- Imported water
- Land use planning
- Surface storage
- Watershed planning

Possible Funding Sources

Ventura County's population continues to grow, while dependable new sources of water are becoming more difficult to secure. This is due to many factors such as the passage of various laws and regulatory actions, etc. Since prospects for developing any substantial additional water supplies through traditional means (such as building new reservoirs) are limited, increasing

attention is focused on water transfers. Many believe that a market-based allocation system would result in more "efficient" water use. Thus, water transfers are receiving strong support and are viewed by some as a simple answer to a complex problem.

The most likely sources of funding are listed below.

- Local funding (i.e., joint funding from water districts' general funds, user fees or surcharges)
- State and Federal grants (DWR, USBR, EPA, SWRCB/RWQCB)
- Local taxes or assessments to users, landowners, or beneficiaries of the water transfer

5.2.16 Water Treatment And Distribution System Water Quality

Description

Water Treatment

Water treatment facilities are designed to treat water sources to produce drinking water that is safe for human consumption, and that meets all regulatory standards promulgated under the Federal Safe Drinking Water Act (SDWA) of 1974, and currently regulated through the Surface Water Treatment Rule (SWTR) amendment to the Act. The California Department of Health Services (DHS) has primacy for enforcing these rules for all public water systems in the State of California. Public water suppliers are responsible for conducting regular water quality sampling, and must report the findings to DHS on a monthly basis.

Water treatment facilities are designed to meet maximum flow rates that equal current or future demands of a particular community. Other design considerations include the type and quality of a water source needing to be treated. Conventional surface water treatment begins with screening out any large particles and/or debris, followed by pretreatment (sedimentation, algae microstraining, chlorination, etc.), and coagulation/flocculation. Coagulants are chemicals mixed into the water that cause very small suspended particles to bind together into larger clumps called floc. Floculated water is then sent to large sedimentation basins where the heavy floc settles out prior to filtration. Direct treatment facilities bypass settling and apply flocculated water directly to the filters. Filters are usually layered with a combination of sand, gravel, and anthracite coal. Treatment concludes with injection of chlorine which prevents any microorganism re-growth in the distribution system. Sometimes the pH is adjusted to minimize lead and copper leaching in private plumbing. Fluoride may be added for public health purposes and is required for large water systems in California (over 10,000 connections).

The SWTR requires all surface waters be filtered and disinfected to inactivate any microorganisms associated with the source water. Treatment plants are primarily regulated by disinfection credits and water clarity (turbidity). Groundwater, however, is naturally filtered when it passes through soils and is usually only required to be disinfected. Groundwater often contains other constituents that require removal or reduction (salts, iron, manganese, etc. – See Section 2.1.9). Nitrate can show up in groundwater as well due to dilapidated septic tank systems or agricultural fertilizer runoff.

There are several methods for desalting groundwater, but the most common method is incorporating some type of microfiltration and/or reverse osmosis system to the water, which removes the salts and produces a higher quality of drinking water. Iron and manganese are a common problem and are usually removed or reduced by filtering the water through sand, anthracite coal, or some other commercially available filter media. Nitrate is difficult to remove and usually requires the source of nitrate be controlled or eliminated. Blending with other water sources, pumping and treating, or abandoning the well for other sources are other options. Nitrate is an issue because of its potential to cause "Blue Baby Syndrome" (infantile methaemoglobinaemia) in small children, which essentially strips oxygen from a child's blood. Nitrate can also cause eutrophication (water pollution caused by excessive plant nutrients) if released in excess amounts into the environment.

Distribution System Water Quality

The purpose of a distribution system is to distribute treated potable water to customers and to prevent any contamination that could occur. The distribution system must be designed to handle peak customer demands as well as firefighting demands. Distribution systems are regulated by DHS through three main SDWA regulatory rules: the Disinfection/Disinfectant By-Product Rule (D/DBP Rule), the Total Coliform Rule (TCR), and the Lead and Copper Rule (LCR). Title 17 Cross-Connection Regulations (CCR) requires proper backflow prevention programs and devices, to guard against potential contamination from accidental backflow or backsiphonage.

DBPs are formed through the disinfection process when organic material in the water reacts with chlorine or chloramine. The resulting DBPs are known as Trihalomethanes (THMs) and Haloacetic Acids (HAAs), both of which require quarterly monitoring. DBPs are known carcinogens, and are believed to increase chances of cancer from long-term exposure. Though DBPs are usually first formed at a treatment plant, they can increase over time in a distribution system. If a system has long detention times and high water age, DBP concentrations may increase. Tanks and reservoirs that are stagnant, have stratification, or dead zones, can increase DBP levels. Therefore, it is important to keep reservoirs and tanks completely mixed and fresh. Customers located at dead-ends or off of an oversized pipe may have increased levels of DBPs in their water. Therefore, it is beneficial to avoid installing dead-end piping and to install pipe loops whenever possible. The distribution system should be flushed regularly. Customers located at the very far reaches of a distribution system, consequently have the highest water age, and are likely to have higher DBPs in their water. Many utilities have reduced DBPs by switching from free chlorine to chloramine (free chlorine mixed with ammonia) as their secondary disinfectant. Chloramine produces less DBPs because it is not as reactive as free chlorine. Another way to reduce DBPs is to prevent organic material from entering the source water.

The TCR requires that chlorine levels anywhere in the distribution system be detectable at all times and that the system be free of any bacteria (measured by the presence or absence of coliform bacteria). Similar to DBP formation, chlorine loss can occur in systems with high water age, either through unmixed tanks and reservoirs, or dead-end/oversized pipelines. If chlorine levels are lost, bacteria and other microorganisms can re-grow. This is why TCR sample sites are distributed throughout a distribution system and sampled regularly. If pipes break or are replaced, they must be properly disinfected before they are placed back into service. Reservoirs and tanks should be cleaned regularly and pipelines flushed to remove chlorine demand from the distribution system.

The LCR requires monitoring of lead and copper concentrations at specific customer taps once per year. Reduced triennial monitoring is conducted by distribution system customers using a “first flush” method by collecting the sample first thing in the morning after water has sat stagnant in the pipes all night. Usually, lead and copper concentrations are minimal in a utility’s plumbing yet are substantial inside the plumbing of older private residences and businesses (plumbing installed before 1988). Regardless, the LCR requires that water purveyors initiate steps to reduce lead and copper leaching as well as provide free testing and education to the public. Utilities usually increase the pH of the delivered water, which reduces lead and copper leaching at the tap. Educational programs are initiated to educate the public about the danger and usually recommend flushing taps for 30 seconds to 2 minutes first thing in the morning.

Water Treatment and Distribution in Ventura County

There are three major water suppliers in Ventura County that provide water to the majority of Ventura County residents: Casitas Municipal Water District, United Water Conservation District, and Calleguas Municipal Water District. These three Districts provide treatment and deliver wholesale water through their transmission systems to roughly 180 individual public water purveyors.

The following table (Table 5-2) summarizes the major suppliers and their water treatment facilities in Ventura County, their present and future capacities, current treatment method and goals, as well as possible future treatment goals. The table is meant to show overall common treatment trends in Ventura County and is not a full inventory of all treatment facilities in Ventura County (many smaller purveyors may provide additional treatment not listed here). The information provided in this section was taken mainly from 2005 Consumer Confidence Reports (CCRs) and 2005 Urban Water Management Plans (UWMPs) available online.

TABLE 5-2 – SUMMARY OF MAJOR WATER TREATMENT PLANTS IN VENTURA COUNTY

Water Treatment Plant and (Water Source)	Treatment Plant Type	Current and Capacity	Current Treatment Goals	Future Treatment Goals
Casitas MWD				
Marion R. Walker Filter Plant (Casitas Reservoir)	High Rate In-line Pressure Filtration Plant with chloramination	18.6 mgd	Removal of high turbidity, silt, and organic matter.	Solids removal program. Phosphate addition for copper reduction.
Miramonte Well (Ventura River Groundwater Basin)	Chloramination	0.27 mgd	Mix high-nitrate water with Casitas water	Phosphate addition for copper reduction.
United WCD				
El Rio Plant – 12 wells (Oxnard Forebay/ Santa Clara River Recharge)	Chloramination	34 mgd	Mixing high nitrate well sources with low nitrate sources, or use deeper wells. Adding sequestering agent to deeper well sources for iron/manganese.	Desalting plants to remove/reduce salts. Early release of Piru water to dilute nitrates. Further treatment for iron/manganese.
Freeman Diversion (Santa Clara River/ Lake Piru and possible SWP)	Microscreening and Natural Filtration before Recharge	242 mgd	Recharge Oxnard Forebay with higher quality SC River water, provide natural filtration, and counteract saltwater intrusion.	
Calleguas MWD				
Joseph Jensen Filter Plant (from MWD) (Sacramento-San Joaquin Bay Delta Water through SWP)	Conventional with chloramination	750 mgd		
Lake Bard Water Filtration Plant	Direct with pre-microfiltration and chloramination	65 mgd	Zooplankton removal, taste and odor treatment, corrosivity.	

Casitas Municipal Water District

Casitas Municipal Water District source water consists of a mix of local surface water from Casitas Reservoir and local groundwater pumped from the Ventura River Drainage Basin. Surface water is treated at the Marion R. Walker Water Treatment Plant which employs a high-rate, in-line pressure filtration plant to remove turbidity, silt, and other natural materials from the water source. The solids are dried and then transported to the landfill. Groundwater is primarily taken from the

Miramonte Well, which is fairly high in nitrates. Nitrate levels are kept low in the distribution and transmission systems by mixing the well water with Casitas Reservoir water. The Casitas MWD distribution system recently showed elevated levels of copper, but these levels are being reduced by applying phosphate to the water. All Casitas MWD water is chloraminated before delivery to customers.

Though the Casitas Reservoir watershed is Federally protected to prevent potential contamination, the 2005 CCR lists the following as potential contamination sources: boat services (repair and refinishing), petroleum pipelines, body-contact recreation, private sewage disposal systems, livestock and wildlife grazing, pesticide and herbicide use, unauthorized dumping, new growth and homes, traffic accidents, and accidental spills. Potential sources of contamination of the Miramonte Well include fertilizers and animal grazing.

Casitas MWD water is delivered to several water purveyors in Northern Ventura County, including the following:

- City of Ventura
- County of Ventura
- City of Ojai
- Hermitage Mutual Water Company
- Meiners Oaks County Water District
- Ojai Basin Groundwater Agency
- Ranchitos Decielo Mutual Water Company
- Rincon Water & Road Works
- Senior Canyon Mutual Water Company
- Siete Robles Mutual Water Company Sisar Mutual Water Company
- Golden State Water Company
- Sulphur Mountain Road Water Association
- Tico Mutual Water Company
- Ventura River County Water District

United Water Conservation District

United Water Conservation District (UWCD) source water consists primarily of shallow groundwater pumped from the Oxnard Forebay aquifer near El Rio. The El Rio Plant consists of 12 wells and a chloramination facility. The El Rio source is supplemented by Santa Clara River water diverted from Freeman Diversion Dam during the wet season. The Santa Clara River water is sent to the Saticoy Spreading Grounds as well as the El Rio Spreading Grounds located directly adjacent to the El Rio Plant. The El Rio Plant supplies several smaller water purveyors via their Oxnard-Hueneme (OH) Pipeline.

The water has elevated levels of sodium, sulfate, and TDS. These constituents are all above established taste thresholds (U.S. EPA), and therefore may be detected by customers. Nitrate levels often become elevated in summer months (when Santa Clara River recedes), sometimes requiring a particular well be taken off-line. If high nitrate levels show up in several shallow wells, or any other water quality emergencies occur, deeper wells that are free of nitrate would be accessed. Another possible way to alleviate high nitrates is to conduct an early release of Lake Piru water, which would enter the Santa Clara River and be diverted to the El Rio Spreading Grounds.

Deeper wells, though seldom used, have high iron and manganese levels and prompt the addition of a sequestering agent. Even with the addition of a sequestering agent, it is believed the iron and manganese levels could remain elevated and could effect the operations of downstream purveyors. Consequently, further iron/manganese treatment methods are being investigated by the UWCD.

UWCD water is delivered to several water purveyors in Central Ventura County, including the following:

- City of Oxnard
- Cypress Mutual Water Company
- Dempsey Road Mutual Water Company
- Ocean View Municipal Water District
- Port Hueneme Water Agency
- Rio Del Valle and Rio Real Schools
- Saviers Road Mutual Water Company
- Vineyard Avenue Estates Mutual Water Company

Calleguas Municipal Water District

Sacramento-San Joaquin Bay-Delta water is supplied by the Metropolitan Water District (Metropolitan) to Calleguas Municipal Water District (Calleguas) through the State Water Project (SWP). Calleguas in turn supplies the water to several purveyors in Ventura County, including many of the Cities and special districts in eastern Ventura County. The water is treated by Metropolitan at the Joseph Jensen Water Treatment Plant located in Granada Hills, California. The Water Treatment Plan is a conventional treatment plant consisting of screening, coagulation/flocculation, sedimentation, filtration, and chloramination. The water tends to be of higher quality than local surface water due to lower amounts of dissolved solids. Therefore, the water does not require any additional treatment downstream of the plant and is generally accepted as a higher quality water source compared to local groundwater supplies.

Surplus water supplied to Calleguas is stored in Lake Bard, an uncovered and restricted reservoir located in Thousand Oaks. The water is treated at the Lake Bard Water Filtration Plant and supplements the system during peak demands and emergencies. The facility is a direct filtration plant that conducts pre-oxygenation to improve taste and treatability, pre-screening to remove zooplankton, and pre-oxidization (ozone) to improve taste and odor. The water is chloraminated before being delivered to customers.

Calleguas water is delivered to several water purveyors in Eastern and Southern Ventura County, including the following:

- Berylwood Heights Mutual Water Company
- Brandels Mutual Water Company
- California American Water Company
- California Water Service Company
- Camrosa Water District
- Capehart Housing – US Navy
- City of Camarillo
- City of Oxnard
- City of Thousand Oaks
- Crestview Mutual Water Company
- Lake Sherwood Community Services District
- Newbury Park Academy Water Company
- Oak Park Water Service
- Pleasant Valley Mutual Water Company
- Port Hueneme Water Agency Solano Verde
- Golden State Water Company
- Ventura County Water Works Districts (#1, 8 & #19) – City of Simi Valley, City of Moorpark

Other Treatment Facilities

The City of Ventura operates three water treatment plants with a combined capacity of 31 mgd: North Ventura Avenue Treatment Plant, Bailey Conditioning Facility, and the Saticoy Conditioning Facility. The North Ventura Avenue Treatment Plant is a conventional surface water treatment plant that treats Ventura River water, whereas the conditioning facilities remove iron and manganese from groundwater sources. All facilities adjust the pH for lead and copper protection and chloraminate the water prior to delivering to customers.

The Port Hueneme Water Agency utilizes a reverse osmosis/untrafiltration/electrodialysis desalting facility, which allows for further blending options to improve overall water quality for its customers. The City of Oxnard is currently constructing the Blending Station No. 1 Desalter Facility, which will utilize reverse osmosis to remove dissolved minerals from groundwater before blending with other water sources, in order to maintain or improve water quality.

Benefits of Implementation

The most important benefit of water treatment is protecting public health and giving customers confidence and in the quality of their drinking water. Since salt concentrations are elevated in many Ventura County groundwater sources, removing salts from the water makes the water taste better, makes it better for irrigation, and contributes to a healthier watershed. Removing organic material and algae from surface water decreases taste and odor issues and prevents the creation of carcinogenic DBPs. Adjusting pH for corrosion control, protects customers from lead and copper exposure. Regulating fertilizer runoff and converting septic tanks to sewer systems, reduces nitrates in local groundwater, which negates the need for more imported water for mixing and provides effortless protection from "blue-baby" syndrome. Designing and operating distribution systems with water quality in mind, ensures that treated water remains safe, fresh, and aesthetically pleasing.

Existing Efforts

There are currently plans being considered by several Ventura County water purveyors to dewater and desalt shallow groundwater basins known to have high salt concentrations. The strategy is to remove salt water from problematic groundwater basins and allow natural hydraulic pressures to slowly replace the water with fresher, low-salt water. This strategy would be coupled with a groundwater basin salt balance program where the total amount of salts entering and being removed from the watershed would be closely monitored to ensure salts entering are less than salts being removed. The strategy requires desalting plants to be constructed in specific problematic areas. This is currently being planned in the Calleguas Creek Watershed. Calleguas plans to install a brine conveyance line to transfer saline water from future desalting facilities for other uses in the watershed or to the ocean. Other desalting programs include groundwater recharge of fresher, low-salt water to counteract salt-water intrusion and regulating the use of private water softeners and ensuring proper brine waste disposal.

All residences located within the Oxnard Forebay are currently being switched from septic tanks to sewer connections. This is to be completed by January 1, 2008, and is required by CCR Title 23. The regulation was prompted because of the critical role the Oxnard Forebay plays in recharging the upper and lower Oxnard Plain aquifer systems. This action is expected to significantly lower nitrates in that area.

Beneficial use of tertiary treated recycled water is increasing in Ventura County. Recycled water is distributed to golf courses, parks, median strips, and irrigation of new development among others. The benefits are less dependence on imported water and indirect recharge of local groundwater sources. Also, using recycled water for irrigation frees up higher quality water for human consumption. Some districts are utilizing recycled water to directly recharge certain groundwater basins. It is important, however, that nutrients associated with recycled water be removed or monitored as these constituents could end up in groundwater sources.

Casitas MWD currently controls algae growth in Casitas Reservoir by applying copper sulfate and aeration, especially in the summer when algae growth is accelerated. Algae is a precursor for taste and odor issues as well as the creation of DBPs. A watershed sanitary survey is conducted every 5 years to assess any potential contamination sources in the watershed.

Casitas MWD also provides mechanical mixing in all of its tanks and reservoirs, which helps keep water mixed and fresh and prevents chloramine nitrification. More and more utilities in Ventura County are assessing whether their tanks and reservoirs are well-mixed and taking steps in design and operation to improve mixing.

Constraints to Implementation

The main constraint for most of these improvements is cost. Providing treatment of any variety can be very expensive. That is why it is important to try and remove salt and nitrate by not allowing it to enter the watershed in the first place. However, membrane technologies for treating salts are becoming more and more price-competitive with costs for importing water.

Many residents in Ventura County have their own private water softening devices. The problem with these devices is the brine waste they produce. Oftentimes this waste is not disposed of properly and may end up in local groundwater supplies. Ventura County is taking steps to limit the use of these devices and encourage proper disposal of brine waste.

Although septic systems are steadily being replaced in the most critical areas of Ventura County, nitrates from agricultural runoff are still an issue. More resources need to be directed towards best management practices related to agricultural fertilizer applications and educating farmers about directing their runoff to a proper disposal area. In the future the WCVC will work with the agricultural community to address best management practices for fertilizer application and irrigation for implementation as a regional project.

The demand for recreational use of surface water sources is continually increasing. The more recreational use that occurs in a source water reservoir, the more potential there is for contamination to occur. Therefore, steps need to be taken to educate recreational users and to enforce rules protecting the water source. The costs for enforcing such stringent rules can become exorbitant. Conversely, if rules are not enforced and a water source becomes contaminated, costs associated with regulatory non-compliance and citations can be equally or more exorbitant. In the long run, providing additional tiers of treatment may be the safest option.

Related Documents and Websites

Casitas Municipal Water District (www.casitaswater.org)

- 2005 Consumer Confidence Report
- 2005 Urban Water Management Plan

United Water Conservation District (www.unitedwater.org):

- 2005 Consumer Confidence Report
- 2005 Urban Water Management Plan
- 2003 Santa Paula Basin Annual Report
- 2003 Coastal Saline Intrusion Report

Calleguas Municipal Water District (www.calleguas.com):

- 2005 Consumer Confidence Report

- 2005 Urban Water Management Plan
- Calleguas Creek Watershed Integrated Regional Water Management Plan
- Calleguas Creek Watershed Salts TMDL

Metropolitan Water District (www.mwdh2o.com)

- 2005 Consumer Confidence Report
- 2005 Urban Water Management Plan
- Joseph Jensen Treatment Plant (http://www.mwdh2o.com/mwdh2o/pages/yourwater/plants/jensen01.html)

California Department of Health Services (http://www.dhs.ca.gov/ps/ddwem/technical/dwp/dwpindex.htm)

Federal EPA (http://www.epa.gov/safewater/)

American Water Works Association (www.awwa.org)

Recommended Future Projects or Actions

- Continue projects for dewatering/desalting, and watershed salts balance; continue research on the most cost-effective brine waste disposal methods or beneficial reuse.
- Provide education on private water softening devices and enforce new regulations for usage and brine disposal.
- Continue using recycled water for beneficial uses and provide incentives for recycled water use in new development projects. Research cost-effective nutrient removal methods.
- Conduct hydraulic computer modeling of water systems to ensure water is being managed in the most efficient way and to optimize water quality. Ensure new water facilities and older water facilities are outfitted with best available technologies for water quality and mixing. Research best operating methods for optimizing water quality in the distribution system.
- Continue septic system/sewer changeover projects.
- Investigate best methods for algae control and removal in surface water.
- Conduct in-depth sanitary surveys of all water sources and investigate cost-effective recreational management strategies for surface water quality.
- Initiate source-control programs and educate the public and farmers about runoff.
- Research cost-effective iron and manganese treatment for deep aquifer sources.

Possible Funding Sources

Possible funding sources for all of the treatment projects listed could be State grants, Federal grants, or low-interest loans. Increasing local connection fees and water rates is also a viable option.

5.2.17 Wastewater Treatment And Collection

Description

Wastewater treatment facilities are designed to treat water that is discarded by a community to a point that it becomes safe to return back to the environment or to reuse. Wastewater release into the environment is regulated under the Water Pollution Control Act of 1972, which was amended in 1977 and became known as the Federal Clean Water Act. The Act requires wastewater treatment facilities to apply and receive an National Pollutant Discharge Elimination System (NPDES) permit before they can discharge wastewater into any water body in the U.S. The California State Water Resources Control Board (SWRCB) has primacy for enforcing these rules in the State of California. The SWRCB is divided into several smaller regions throughout California, referred to as the Regional Water Quality Control Board (RWQCB). Permits are reviewed and considered on a case-by-case basis, depending on the nature of the wastewater needing treatment, and the proposed methods for meeting Total Maximum Daily Loads (TMDLs) for a particular receiving water body. The primary constituent of interest is biochemical oxygen demand (BOD), which is a measure of how much oxygen is required to biodegrade organic constituents. If a waste stream has too much BOD, the receiving water body may become low in dissolved oxygen (DO), threatening the survival of fish and amphibians. Other regulated constituents include total suspended solids (TSS), pH, chemical oxygen demand (COD), and various pathogens. Nutrients (nitrogen and phosphorus), refractory organics, heavy metals, and dissolved organic salts may also require treatment or removal.

Wastewater is usually treated by a public utility termed a "Publicly Owned Treatment Works" (POTW). POTWs receive and treat both domestic and industrial wastewater. Domestic wastewater is from residences, commercial buildings, and institutions; whereas industrial wastewater is primarily from manufacturing or chemical processing plants. POTWs construct collection systems of underground pipelines to collect the wastewater from a community and deliver it to the facility. Collection systems are usually designed to flow by gravity in order to reduce electrical power by avoiding pumping . This design is aided by the fact that most wastewater treatment facilities are built at low elevations near a receiving water body. Wastewater treatment facilities and collection systems are designed to receive roughly 70 to 80 percent of the amount of drinking water supplied, plus any wet-weather infiltration that occurs. Some older cities struggle with combined stormwater and sewer pipelines that can often overflow raw sewage during large rain events. Pre-treatment by industrial wastewater producers is required before the waste stream will be accepted by a POTW.

Sewer pipelines can be made of vitrified clay, plastic, or concrete. Pipelines flow by gravity from small laterals at residences, to mid-sized pipes called mains, to the large trunk or intercepting sewers that deliver the water to the treatment facility. Sometimes topography and geology may require mains to work as siphons or be pumped and pressurized. Pipelines that operate in this fashion are often called "force mains." Manholes are placed throughout the collection system to provide easy access for maintenance. The biggest maintenance issue faced by collection system operators is unclogging sewer pipelines. Clogs can occur from build-up of fats, oils, and grease (FOG - often from restaurants), blockages by tree roots, or from collapse. Many larger utilities regularly employ remote control mobile camera devices to survey certain pipelines and look for problems.

A typical domestic wastewater treatment facility consists of two tiers of treatment, termed primary and secondary treatment. Primary and secondary treatment usually provide sufficient treatment

for discharging the water back into the environment, and is the minimum level of treatment required for most treatment facilities. For industrial wastes, treatment facilities are required to treat the water with the "best available technology," depending on the constituents needing removal or reduction. If a particular receiving water body is especially vulnerable to wastewater discharges a third tier of treatment termed tertiary treatment may be required. Biological nutrient removal (BNR), using nitrification/denitrification process, is sometimes required by an NPDES permit if the receiving water body is vulnerable to eutrophication. Many POTWs in Ventura County use BNR for this reason, and some use BNR to gain process stability. Increasingly more wastewater treatment facilities are treating wastewater to tertiary standards to produce recycled water for beneficial reuse such as irrigation, wetland creation, miscellaneous industrial use, dust control, and groundwater recharge. Using recycled water for non-potable purposes frees up higher quality water sources for drinking, reduces the overall demand for treated potable water, and thereby conserves water throughout Ventura County and California.

For a typical domestic wastewater facility, treatment begins with screening out any large objects like trash, wood, and rags from the influent, which is often followed by some sort of grit removal system. Screening may also remove any large FOG solids. Water then begins primary sedimentation, starting with a clarifier or settling basin where the majority of organic solids are removed. The solids are then sent for further treatment and disposal (to be discussed later). The wastewater leftover from primary treatment is sent to secondary treatment, which begins with aeration and biological treatment. Biological treatment consists of providing an oxygen-rich environment so that microorganisms can rapidly convert suspended and dissolved organic material into biomass. This is done either by cascading water over a trickling filter mesh or running water through some type of aeration basin where oxygen is supplied (activated sludge method). This process significantly decreases the amount of BOD in the waste stream. The water is then sent to a secondary clarifier where the biomass settles out and is removed. The resulting effluent is usually chlorinated and dechlorinated before it is released into the environment. Other disinfection methods may include UV disinfection or ozone disinfection before the effluent is released.

The wastewater discharge requirements outlined in an NPDES permit for discharging to a receiving water body can be very expensive to achieve, and sometimes there is not a water body with sufficient dilution available. Evaporation/percolation is a viable alternative to stream-discharge, and is used by many Ventura County POTWs. After the wastewater is treated and meets all discharge requirements, it is sent to a percolation pond where the water evaporates and slowly percolates into the ground.

Settled solids from primary and secondary treatment are gathered from all the settling processes, dewatered or "thickened," and either aerobically (with oxygen) or anaerobically (without oxygen) digested to remove any pathogens, reduce volatiles, and render the solids inert. A by-product of anaerobic digestion is methane, which is often collected and used to supplement the plant's energy needs. The resulting solids are usually sent to a landfill, incinerated, or used for land applications or composting.

Smaller communities, or those with low-cost treatment objectives, may choose to meet primary and secondary standards using a series of oxidation ponds. Facultative ponds are shallow water basins that utilize the natural aerobic decomposition from the atmosphere and from algae and natural anaerobic decomposition at the bottom of the pond. In some cases, the pond will be artificially oxidized by mechanical means to speed up the decomposition process. Another option is the use of treatment wetlands. Wetlands can be used to meet secondary treatment objectives or as a means to polishing water quality before it is released back into the environment. A major benefit of wetlands

is the ability of wetlands to uptake nutrients (nitrogen and phosphorus). Treating wastewater using oxidation ponds or wetlands are both viable treatment alternatives but require more time and more land to operate.

Tertiary treatment is achieved by diverting a portion or all of the secondary effluent to a filter process similar to what is used to filter drinking water. The water is then chlorinated with a minimum contact time, and a minimum CT (chlorine concentration multiplied by contact time), as determined by Department of Health Services (CDHS), before it is delivered to customers. Some agencies provide BNR in addition to tertiary treatment to gain process stability. If the treated wastewater is to be discharged into a watercourse, the CDHS is not involved in the regulatory process.

Wastewater Treatment in Ventura County

There are approximately 14 large wastewater treatment facilities in Ventura County. Roughly half of these facilities employ tertiary treatment for beneficial reuse, and 4 have plans to construct tertiary treatment facilities. About 9 of the 14 treat to remove nitrogen. The majority of the facilities (8) dispose of their wastewater effluent in local rivers and streams, 5 percolate it back into the ground, and 1 discharges directly to the ocean. Table 5-3 below summarizes these wastewater treatment facilities, treatment levels, disposal methods, secondary and tertiary capacities, and future treatment goals.

TABLE 5-3 – SUMMARY OF LARGE WASTEWATER TREATMENT FACILITIES IN VENTURA COUNTY

Wastewater Treatment Facility and (Capacity)	Treatment Level and (Disposal Method)	Tertiary Use and (Capacity)	Future Treatment Goals
Camarillo Sanitary District (6.75 mgd)	Tertiary with BNR (Discharge into Conejo Creek or used for irrigation)	Irrigation (beginning in 2007) (6.75 mgd)	Increase irrigation usage of tertiary water. Cease effluent discharge into Conejo Creek by early 2008
Camrosa Water District (1.5 mgd)	Tertiary with BNR (Leftover water discharged to Conejo Creek)	Irrigation, CSUCI campus irrigation (1.5 mgd)	Sell all tertiary effluent to customers and discharge in Conejo Creek only during peak wet season; buy additional supplies from Camarillo SD
City of Fillmore (1.33 mgd)	Secondary (Percolation into Fillmore Basin)	None	Plans for a new 1.8 mgd water recycled water plant in 2009
City of Oxnard (31.7 mgd)	Secondary (Discharge to Ocean)	None	Provide tertiary recycled water to Oxnard and Port Hueneme Water Agency for industrial purposes, landscape irrigation, agricultural use, and groundwater injection for seawater intrusion and against salt water intrusion barrier (6.25 mgd in Phase 1; 25 mgd ultimate); receive groundwater recharge credits and build distribution system. Reduce effluent THMs
City of Santa Paula (2.55 mgd)	Secondary (Discharge into Santa Clara River)	None	Currently in process of designing a 4.2 mgd tertiary recycled water plant
City of Simi Valley (12.5 mgd)	Tertiary with BNR (Discharge into Arroyo Simi)	Irrigation, washwater, and dust abatement (0.9 mgd)	Investment in a regional recycled water distribution system including new pipelines and 2 new reservoirs.
City of Thousand Oaks – Hill Canyon WWTP (14.0 mgd)	Tertiary with BNR (Discharge into north fork of Arroyo Conejo)	Irrigation and wetlands (14.0 mgd)	
City of Ventura (14.0 mgd)	Tertiary with partial BNR (~90% discharge into the Santa Clara River Estuary, ~10% to golf course and other uses)	River discharge and irrigation of golf courses (14.0 mgd)	Full BNR, continued recycling to NPDES Permit limits

TABLE 5-3 – SUMMARY OF MAJOR WASTEWATER TREATMENT PLANTS IN VENTURA COUNTY (CONTINUED)

Wastewater Treatment Facility and (Capacity)	Treatment Level and (Disposal Method)	Tertiary Use and (Capacity)	Future Treatment Goals
Montalvo Municipal Improvement District (1.1 mgd)	Secondary (Discharge into the Santa Clara River Estuary)	None	
Ojai Valley Sanitation District (3.0 mgd)	Tertiary with BNR (Discharge into Ventura River)	Discharged to river (3.0 mgd)	Thalium and Bis (2-ethylhexyl) phthalate reduction
Saticoy Sanitary District (0.3 mgd)	Secondary with nutrient removal (Percolation ponds)	None	
VCWWD No. 1 – Moorpark WWTP (3.0 mgd)	Extended air, secondary activated sludge, filtered tertiary, with BNR (Percolation ponds or optional discharge to Arroyo Las Posas)	Irrigation of golf course (1.5 mgd)	Provide tertiary treatment for all wastewater; increase total capacity to 5.0 mgd. Expand infrastructure and provide tertiary water for agricultural and other irrigation uses in lieu of potable water.
VCWWD No. 16 – Piru WWTP (0.26 mgd)	Secondary (Percolation ponds)	None	Increase capacity to 0.5 mgd
VCWWD Todd Road WWTP (0.06 mgd)	Secondary with BNR (percolation)	None	

BNR = Biological Nutrient Removal

Benefits of Implementation

The main benefits of providing wastewater treatment are protecting public health and protecting the environment. Meeting regulatory compliance standards when discharging wastewater to the environment ensures streams remain safe for fish and wildlife, groundwater quality is protected, and surfers and swimmers are protected at Ventura County beaches. Providing higher levels of treatment, such as tertiary treatment, salts removal, or nutrients removal, provides an even higher level of protection. Utilizing recycled water for non-potable use frees up higher quality potable water to be used specifically for drinking. By doing so, less imported water is required, and potable treatment demand decreases. Recharging groundwater with recycled water is an effective way to supplement local aquifer supplies and can be used to combat saltwater intrusion. Using recycled water in constructed wetlands provides habitat for many endangered animals and provides open space for hikers and bird-watchers. In addition, wetlands provide a natural way to polish wastewater and naturally remove nutrients.

Existing Efforts

Most of the recycled water in Ventura County is used for irrigating golf courses, parks, schools, median strips, and dust abatement. The majority of treatment agencies have plans to expand production and uses of recycled water. Several agencies are partnering to build recycled water distribution systems, and more water purveyors are buying the water to serve to their customers. For example, the Camrosa Water District is planning to purchase additional recycled water from Camarillo Sanitary District, to aid in supplying local agriculture and California State University, Channel Islands' irrigation needs. Camrosa Water District also requires dual plumbing for all new subdivision development. The City of Oxnard is planning to construct a recycled water distribution system and will sell the water to the Ocean View Municipal Water District, Port Hueneme Water Agency and other agencies. Triunfo Sanitation District and Las Virgenes Water District work together to distribute recycled water to Ventura County for beneficial uses. The City of Simi Valley/Ventura County Waterworks District No. 8 is currently updating the Simi Valley County Sanitation District Reclamation Facilities Plan Update (Engineering Science, 1992). The Plan will further describe recycled water opportunities.

Recycled water is another form of water conservation. Better use of recycled water is critically important to stretching California's water resources. Cities are requiring new developers to incorporate recycled water into their irrigation plans. Ventura County recycled water purveyors are educating the public on the beneficial uses of recycled water, and the water source is becoming increasingly accepted.

In May 2006, the SWRCB adopted a General Waste Discharge Requirement (WDR) that requires POTWs with greater than one mile of sewer pipe to electronically report all sanitary sewer overflows (SSOs) to their California Integrated Water Quality System (CIWQS). Many POTWs in Ventura County are currently preparing for this requirement.

Constraints to Implementation

Not all wastewater treatment facilities remove or treat nutrients. Removing nitrogen and/or phosphorus from wastewater is important because they are the limiting nutrients for aquatic plant and algae growth. If a water body receives too many nutrients, eutrophication, or overgrowth of plants causing anoxic conditions could occur and endanger wildlife. Also, nutrients in secondary or tertiary wastewater could end up in local groundwater supplies, working against existing efforts by water agencies to keep nitrate levels low (See Water Treatment and Distribution System Water Quality section). Removal of nutrients can be very costly.

Salts that are in drinking water or are added by residents often remain in the treated wastewater effluent. If salts are not removed or reduced, they may show up in local groundwater supplies, working against efforts to reduce salts in local groundwater by various Ventura County water agencies (See Water Treatment and Distribution System Water Quality section).

Some restaurants, businesses, and residents may, with or without malicious intent, dump FOG and various toxic chemical into the sewer system. FOG can prematurely clog system pipelines and lift stations requiring significant man-hours and cost to remove such clogs. Clogs in the collection system can cause backup and flooding, placing public health and the environment at risk. Toxic chemicals can cause harmful reactions in the collection system or treatment facility, including pipeline corrosion or killing all the beneficial microorganisms in secondary treatment that decompose the wastewater. Therefore, it is imperative that wastewater districts conduct

educational programs to educate the public about this problem, as well as provide information and easy access to oil recycling and toxic substance disposal. Water sampling should be conducted regularly from various branches of the collection system to isolate any problematic waste streams or illegal dumping. Source Control Officers should review water quality data, investigate unlawful waste disposal, and conduct regular inspections of suspected or high-risk entities.

Ventura County already has successful household hazardous waste drop-off programs scattered throughout the County. While some sites are only open once a month, several recycling centers are open daily. They accept paints, solvents, cleaning products, lawn and garden products, photographic chemicals, oil, antifreeze, car and household batteries, light tubes, and more.

Many scientific studies are showing that treated wastewater often still contains pharmaceutical and personal care products (PPCPs) and/or hormonal waste chemicals that are causing problems with fish and amphibians. These chemicals have been termed "contaminants of emerging concern" (CECs), because they are new contaminants that are not yet well understood. Scientific studies of fish and amphibians located just downstream of wastewater and industrial treatment plants have shown problems with reproductive health, and in some cases male fish and amphibians have become feminized. Chemicals that interfere with normal reproductive health are termed "endocrine disruptor compounds" (EDCs). The fate and transport of such chemicals and their effects on humans is not well understood. More efforts are needed to research the health problems associated with endocrine disruptors and apply best-available technologies to remove such chemicals from wastewater effluent.

Related Documents and Websites

Emerging contaminants and endocrine disruptors:
http://toxics.usgs.gov/regional/emc/index.html

California Department of Health Services:
http://www.dhs.ca.gov/ps/ddwem/publications/waterrecycling/index.htm

Federal Clean Water Act:
http://www.epa.gov/watertrain/cwa/
http://cfpub1.epa.gov/npdes/home.cfm?program_id=45

Water Environment Federation (WEFTEC)
http://www.wef.org/Home

Water Reuse Information:
http://www.watereuse.org/news/wrnews_050905.htm

Ventura County Household Hazardous Waste Disposal:
http://www.wasteless.org/5_5HHWCollect.html

Recommended Future Projects or Actions

- Investigate other potential recycled water uses and try selling recycled water to more potential users.
- Continue to educate the public about the uses and benefits of recycled water, about water conservation, and about recycled water safety.
- Research creative ways to provide more incentives for public use of recycled water.

- Continue educational programs about FOG and toxic substances that should not be dumped down the drain.
- Continue providing easy-access FOG and toxic substance disposal or recycling centers for the public to properly dispose of problematic substances; continue household hazardous waste disposal programs and educational programs.
- Continue rigorous source control inspections and investigations of suspected illegal dumping; educate restaurant and other business owners of best management practices.
- Investigate and research emerging contaminants (endocrine disruptors) and employ treatment or reduction strategies where possible.
- Investigate low-cost nutrient and salt removal strategies for wastewater effluent.
- Continue installing tertiary treatment facilities and distribution systems.
- Continue beneficial reuse of digestor methane and research better methods of efficiency.
- Research best ways to remove nitrogen (ammonia) from wastewater effluents without increasing THM formation.
- Research the best means for meeting the new Waste Discharge Requirements, requiring the reporting of all SSOs to the State.
- Control use of water softeners to minimize chlorides and TDS concentration in the wastewater effluent.

Possible Funding Sources

Possible funding sources for all of the treatment projects listed could be obtained through State grants, Federal grants, or low-interest loans. Increasing local connection fees and water rates is also a viable option.

5.2.18 Water Use Efficiency (Conservation)

Description

Water use efficiency is a vital component of water management. Water use efficiency practices focus on reducing demand, which can either reduce the need for additional water supplies or free up supplies for other uses. Urban water use efficiency usually includes reductions realized from voluntary actions or more efficient water use practices promoted through public education, cost incentives, and mandated requirements such as installation of water-conserving fixtures in newly constructed or renovated buildings.

Agricultural water conservation (or agricultural water use efficiency) means reducing the amount of irrigation-applied water through measures that increase irrigation efficiency, or that control runoff or excess application losses.

Water conservation is a recognized method of augmenting local water supplies. Once considered primarily as a means to stretch water supplies during droughts or emergencies, ongoing water conservation or water use efficiency is now a standard element of any type of water management plan or process. Statewide standards were developed in the 1990's for both urban and agricultural water efficiency, however not all of these standards have been implemented, and there is still potential for gains in water use efficiency.

Water agencies in Ventura County have a long history of promoting water use efficiency, a practice that began in the late 1970's during an extended drought that affected many water agencies in California. In 1982, Ventura County became the first county in California to implement a regional water efficiency program as part of their focused water conservation initiative. The program was established and funded by a joint powers authority between the three Ventura County wholesale water agencies (Calleguas MWD, Casitas MWD and United WCD). The program addressed urban and agricultural water efficiency, and included participation by all local cities, water agencies, major irrigation districts, and agricultural organizations such as the Resource Conservation District, Natural Resources Conservation Service, and County Farm Bureau. This program was a direct result of the first comprehensive water planning effort by Ventura County known as the 208 Areawide Water Management Plan, 1979-1980.

Urban water use efficiency normally involves technological or behavioral improvements to indoor and outdoor residential, commercial, industrial and institutional water use that lower demand or lower per capita water use and result in benefits to water supply, water quality, and the environment. In residential areas, more than 50 percent of household water use is associated with landscape irrigation, so agencies are making a concerted effort to decrease landscape water demands. In addition to encouraging sprinkler controls, agencies are urging homebuilders and homeowners to landscape with drought tolerant and native plant species adept to the southern California climate. One such program, initiated by Metropolitan Water District of Southern California assists these customers in identifying and implementing "California Friendly" landscapes that utilize, on average, 30 percent less water than typical landscape plans.

Agricultural water use efficiency typically involves mechanical and operational improvements such as conversion to micro sprinklers, drip irrigation methods, or in-bed liquid fertigation, and controlling and capturing runoff or preventing tailwater losses. Irrigation scheduling can be improved through a variety of methods including use of real-time weather data produced by local

weather stations that help irrigators to compare present air and soil moisture values to water demand for specific crops, or in-ground lysimeters and other soil or crop root-zone moisture measurement devices. Planting schedules, tillage methods, and harvesting schedules/methods can also be examined and managed to use water more efficiently in agricultural operations.

Benefits of Implementation

The primary benefits of water use efficiency programs include: reduced need for development of more costly potable water supplies, reduced energy use associated with distribution, reduced heating costs for customers when they use less water in the home, additional water supplies available for environmental uses, reduced costs to users, and reduced operation and maintenance costs. Efficient management of existing water supplies is a critical element of water management and a cost effective alternative to developing new supplies.

Existing Efforts

Many agencies like the California Urban Water Conservation Council (CUWCC) oversee standards for urban water efficiency. These standards are usually referred to as "Best Management Practices" (BMPs) and have been determined through research to provide proven, reliable and often quantifiable water savings when rigorously implemented. There are several rather universal BMPs (see list below) that many water agencies in California have implemented. Hundreds of water agencies, water providers, and individuals (urban water suppliers, public interest groups, consultants, counties/cities, etc.) have signed a Memorandum of Understanding to help promote water use efficiency. Local signatory agencies include: Casitas Municipal Water District, Calleguas Municipal Water District, Camrosa Water District, California American Water Company, the cities of Camarillo, Oxnard, Thousand Oaks, Ventura, and the various Ventura County Waterworks Districts just to name a few.

These BMPs are also included as required demand management measures (DMMs) in the urban water management plans that urban water agencies with over 3,000 customers or 3,000 acre feet of water deliveries per year must prepare and update every five years, as required by the California Water Code. The Urban Water Management Planning Act (Act) is contained in California Water Code Sections 10610 through 10650. The Act requires that "every urban water supplier shall prepare and adopt an Urban Water Management Plan". Urban water supplier is defined as "a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually".

Local agencies required to prepare such plans include: Calleguas MWD, the Cities of Camarillo, Fillmore, Oxnard, Thousand Oaks and Ventura, Camrosa WD, Casitas MWD, and Ventura County Waterworks Districts #1 and #8 (Simi Valley and Moorpark). The required BMPs that aid in water conservation are listed in the table below:

Urban Best Management Practices

BMP 1: Residential Water Use Survey Programs
BMP 2: Residential Plumbing Retrofit or Rebate Programs
BMP 3: System Water Audits to help Educate Users
BMP 4: Accurate Volume Metering w/Pricing Incentives for Less Usage
BMP 5: Landscape Conservation (like better sprinkler timers that sense rainfall or soil moisture)
BMP 6: High Efficiency Clothes Washers
BMP 7: Public Information Programs
BMP 8: School Education Programs
BMP 9: Commercial-Industrial-Institutional Education/Audits/Pricing
BMP 10: Wholesale Water Agency Assistance to Retail Agency Programs
BMP 11: Conservation Pricing Incentives for Appliance Upgrades, etc.
BMP 12: Conservation Coordinators at Water Agencies and Large Businesses
BMP 13: Water Waste Prohibition Ordinances
BMP 14: Ultra Low Flush Toilet Exchange Programs for Residential and Business Applications

Agricultural water use efficiency involves improvements in technologies and management of agricultural water that result in water supply, water quality, and environmental benefits. Efficiency improvements such as better on-farm irrigation equipment, crop and farm water management, and water supply distribution systems are just a few of the options available to farmers. One no-cost source of help is the University of California Farm Advisor's Office, which can provide expertise to assist farmers in improving crop yield while saving water and energy, and improving water quality.

The Agricultural Water Suppliers Efficient Water Management Practices Act of 1990 (AB-3616) and the Federal Central Valley Project Improvement Act of 1992 (CVPIA) established guidelines for improving agricultural water use in California. Statewide groups like the Agricultural Water Management Council (AWMC) work together, through an MOU, with many irrigation water districts for the common benefit of all. In Ventura County, more than 70 large agricultural water users, at least three environmental organizations, and several wholesale and retail water districts have joined a co-op group called the Ventura County Farm Water Coalition (VCFWC) in an effort to improve water use efficiency and conservation through implementation of efficient water management practices. The Council recommends BMPs and tracks agency water management, planning, and implementation of cost effective efficient water management practices through a review and endorsement procedure. The agricultural water suppliers who are signatory to the MOU have voluntarily committed to implement locally cost effective and efficient EWMP's and BMPs. These agricultural water suppliers and users represent a significant number of total acres of irrigated agricultural land, and the majority of the annual water volumes supplied by retail water purveyors and private well owners in Ventura County.

Some of the Efficient Water Management Practices (EWMP's) or Best Management Practices (BMPs) available to agricultural water user to help with conservation efforts are listed below.

1. Prepare and adopt a farmwater management plan
2. Designate and train the irrigation supervisor to be a water conservation coordinator
3. Perform regular checks of water system hardware to check for leaks and proper water placement
4. Where appropriate, replace faulty sprinkler heads, turnouts, and valves

5. Evaluate the need, if any, for changes in watering policies or procedures
6. Facilitate alternative land use and/or drainage practices
7. Use recycled water (if available) that otherwise would not be used beneficially
8. Utilize low-cost financing of capital improvements (when available) for on-farm irrigation systems
9. Participate in voluntary water transfers that do not unreasonably affect the water user, water supplier, the environment, or third parties
10. Construct improvements (lining and piping) to control seepage from ditches, pipeline, and canals
11. Within operational limits, increase flexibility in water ordering and delivery from the water supplier
12. Construct and operate spill and tailwater recovery systems
13. Optimize conjunctive use of surface and groundwater supplies
14. Automate water supply control structures to prevent waste
15. Install and maintain water measurement devices and track water use with accurate reports
16. Take advantage of special pricing or other incentives to efficient water use

The Fox Canyon Groundwater Management Agency (FCGMA), is a special district with the sole purpose of groundwater management. THE FCGMA has been providing crop water use needs through a variety of weather stations for more than 12 years to local farmers in the southern portion of Ventura County to assist them with irrigation scheduling and to promote efficient groundwater use from public and private wells. This free service is accomplished via a series of weather stations (installed and maintained by a private FCGMA contractor) located throughout the FCGMA jurisdiction that were placed to represent various microclimate situations and crop types. The information is gathered every half hour and posted daily to the FCGMA website.

Constraints to Implementation

There are few constraints to implementation of BMPs for urban and agricultural water conservation or efficiency. Many of the BMPs are now considered standard practice among local agencies and water users, and are sometimes required by law (such as plumbing codes or the recent Los Angeles Regional Water Quality Control Board Total Maximum Daily Load or Farm Runoff rules). Public and private water agencies and irrigation districts that become signatories to various MOU's have collective access to technical assistance, research and data to guide their efforts. Although implementation of some BMPs (such as large landscape audits and construction of irrigation improvements) can be costly or labor intensive, collaborative group efforts often lessen the associated costs of compliance and help to create better, more comprehensive water conservation. The most common constraint to implementing such measures (BMPs), results when these measures are not cost effective to implement in the short-run (the water cost savings not justified in the short-term by the capital investment), or when a general consensus cannot be reached among stakeholders that the benefits accrued to water supply or rate payers are worth the investment in the long-run.

As implementation of these measures become standard, water demand "hardens" at a more efficient rate, and additional water savings from implementation of new savings techniques is limited. There may be constraints to achieving greater savings in the future in those areas that have adopted and implemented the BMPs.

Related Documents and Websites

As mentioned above, local urban water suppliers with more than 3,000 customers, or who deliver more than 3,000 acre feet of water volume annually must, by the California Water Code, prepare and implement Urban Water Management Plans, which must be updated every five years. The local retail and wholesale water agencies required to submit these plans include: Calleguas Municipal Water District, the Cities of Camarillo, Fillmore, Oxnard, Thousand Oaks and Ventura, the Camrosa Water District, the Casitas Municipal Water District and the Ventura County Water Works District #1 (Moorpark) and #8 (Simi Valley). Many of these plans were updated in calendar year 2005 and most are available from the individual agency websites or via paper copy at their respective offices.

In addition, signatories to the CUWCC Memorandum of Understanding (MOU) and recipients of State and Federal grant funds must typically prepare reports on an annual basis describing how they implement and update their efforts to implement BMPs. These documents can be found on the several locally generated websites.

Other helpful documents related to water conservation include the 1994 Ventura County Water Management Plan, the California Water Plan (Bulletin 160-2005) Volume 2, and numerous resources found on the water agency and agricultural organization websites.

Web Resources -

- California Department of Water Resources, Office of Water Use Efficiency: http://www.owue.water.ca.gov/
- Information regarding Urban Water Management Plans: http://www.owue.water.ca.gov/urbanplan/index.cfm
- California Urban Water Conservation Council: http://www.cuwcc.org
- U.S. Bureau of Reclamation - Water Conservation Program: http://www.usbr.gov/waterconservation

Recommended Future Projects or Actions

As mentioned previously, local Ventura County water agencies and users have been implementing water efficiency programs since the 1970s, at both the agency level, the individual well owner level, and at the regional level. Many local agencies have signed and are implementing BMPs recommended by respective MOUs that add to, or compliment water conservation measures. Future program recommendations, which can be coordinated through the Watersheds Coalition of Ventura County or the various farm or water supplier groups include:

- Encourage all local water agencies, well owners, or irrigation districts to sign the MOU's for urban and agricultural water efficiency (as appropriate) and appoint a water conservation coordinator for the county and/or large wholesale water districts.

- Coordinate implementation efforts on a regional level through joint powers agency agreements or other means, possibly through the Ventura County Association of Water Agencies (AWA) and/or the Ventura County Farm Bureau.
- Encourage habitat acquisition and restoration practices that increase in-stream flows, including removal of exotic species such as Arundo donax that consume significantly more water than their native counterparts, protection of open space which reduces land available for water-consuming landscaping, and riparian restoration that increases natural canopy cover over streams to reduce evaporation.

Integration with Other Strategies

Conservation or efficient use of water through implementation of best management practices (BMPs), EWMP's, and urban water management plans, positively benefit other water management strategies contained in this IRWMP. These include:

- *Environmental and habitat protection and improvement*
- *Water Supply Reliability*
- *Groundwater management*
- *Water quality protection and improvement*
- *Conjunctive use*
- *Desalination*
- *Imported water (reduced need for)*
- *Land use planning*
- *NPS pollution control*
- *Watershed planning*
- *Water and wastewater treatment*

Possible Funding Sources

- Local funding (i.e., joint funding from water districts' general funds, user fees or surcharges)
- State and Federal grants (DWR, USBR, EPA, SWRCB/RWQCB)

5.2.19 Watershed Planning

Description

Ventura County's watershed planning approach constructs a coordinating framework for resources management that focuses public and private sector efforts toward solutions to priority-ranked problems – both at a countywide and watershed level. It takes into consideration the entire hydrologic cycle and water budget including both ground and surface water flows. Approaches toward planning efforts and solutions suggested in each of the Ventura County's five watersheds vary in terms of specific objectives, priorities, elements, timing, and resources, but all have in common several countywide guiding principles as discussed below.

The countywide watershed planning effort is geographically focused on five downstream points of interest (watersheds). Four of these points of interest are at discrete points on the California coastline within Ventura County. The remaining point of interest is at a point of discharge into neighboring Santa Barbara County. Each of these watersheds is unique in terms of composition, community, and vision – the leadership of each watershed's planning effort are therefore different based on the different needs. Collectively the efforts are coordinated countywide by the Watersheds Coalition of Ventura County. The effectiveness of this planning approach is its geographic focus and structure.

The countywide watershed planning effort includes partnerships with those local stakeholders most affected by watershed management decisions. The local development of these plans serves vital local interests by placing the Plan in the hands of the stakeholders. These stakeholders have the greatest knowledge of both the resources and the aspirations of those who live and work within the watershed - they are also those with the greatest stake in the proper long-term management of the resources. This manner of plan development also serves the State's vital interests by ensuring that the State's water resources are used wisely, by providing for flood management, protecting water rights, protecting in-stream flows, protecting water quality, and providing for the economic well-being of the State's citizenry and communities.

Another guiding principle of the countywide watershed planning effort is the employment of sound scientific data, tools, and techniques. The data, tools, and techniques include:

1. The accurate and detailed inventory, assessment, and characterization of the watersheds' natural resources and the communities that depend upon them.
2. The goal-setting and identification of objectives based upon the condition or vulnerability of the resources and the needs of the community and ecosystem.
3. Identification of priority problems and needs.
4. Development of specific management options and action plans.
5. Implementation.
6. Evaluation of effectiveness and revisions of plans as an-ongoing practice.

The iterative nature of the planning approach encourages watershed stakeholders to set goals and to make maximum progress based upon available information while continuing to analyze and verify where information is incomplete.

At the core of the countywide watershed planning effort are two beliefs. First, the effort stresses that the combined review of the assessment efforts for flood management, surface and groundwater protection, pollution control, fish and wildlife protection, and other resource protection provides stakeholders and managers from all levels of government with a better understanding of the cumulative impacts of various human activities in order to determine the

most critical problems and needs within each watershed. Using this information, stakeholder can set priorities for action that allow the allocation of limited human and financial resources in the most effective manner. Second, the effort believes that communication and coordination among stakeholders in the watershed will reduce costly duplication of efforts and conflicting stakeholder actions.

Information About Watersheds

The five watersheds in Ventura County are (in order of size from smallest to largest): the Malibu Creek Headwaters; Cuyama Creek; Ventura River; Calleguas Creek; and the Santa Clara River. Planning efforts within the Malibu Creek Headwaters and Cuyama Creek are not addressed here. Instead the focus is on the larger and more populous watersheds in Ventura County.

Ventura River Watershed

The westernmost and least populous of the three largest watersheds in Ventura County is the Ventura River Watershed. It encompasses 228 square miles. Its three principal tributaries are San Antonio Creek from the east, Coyote Creek from the west, and Matilija Creek from the north. It is a perennial but interrupted river, running year round throughout its length but underground in some locations during the drier part of the year. The area averages 14 inches of precipitation per year near the coast and 40 inches per year in the mountainous reaches. Flows increase rapidly during winter high intensity rainfalls producing severe floods. Floods occur every 5 to 10 years causing substantial damage.

In addition to the steelhead, endangered species found along the river include the California condor, California red-legged frog, and California brown pelican. The major issue within this watershed is the dramatic historical decline of the southern California steelhead, which is an indication of the general health of the aquatic ecosystem. More than 5000 steelhead formerly migrated up the river and Matilija Creek before Matilija Dam was built in 1947. Now, less than 100 fish make their way up the river. The dam blocks access to more than 20 miles of some of the best remaining steelhead habitat in Southern California.

Much of the upper parts of the Watershed are protected as part of the Matilija Wilderness. Removal of Matilija Dam would provide fish passage to historic breeding waters in the upper watershed and greatly enhance the opportunities for restored habitat for many other species of concern.

The Watershed is home to the City of Ojai, a large part of the City of Ventura, and the County of Ventura unincorporated communities of Casitas Springs, Oak View, and Meiners Oaks. Water is supplied to the majority of watershed residents by the Casitas Municipal Water District – operator of the Ventura River Water Project which includes the Lake Casitas Dam and Robles Diversion Dam (owned by the Bureau of Reclamation) and the Matilija Dam (owned by the Ventura County Watershed Protection District). From a water supply perspective, it is the only self-sufficient Watershed in the County of Ventura.

The Matilija Dam Ecosystem Restoration Study, undertaken by the Ventura County Watershed Protection District and the United States Army Corps of Engineers, provides the foundation inventory and assessment information upon which the watershed planning efforts are founded.

This study starts at the river's mouth (Surfer's Point) and runs to its headwaters in the Matilija Wilderness. Specifically this study focuses on identification of: ecosystem restoration for terrestrial and aquatic habitat to benefit native fish and wildlife (including the Federally listed endangered southern California steelhead trout) to the Ventura River and Matilija Creek in the vicinity of Matilija Dam; and improvements to the natural hydrologic and sediment transport regime to support Ventura River's coastal beach sand replenishment. Enhancement of recreational use along the Ventura River and Matilija Creek compatible with the ecosystem restoration was also considered.

It is currently the single most comprehensive long-range planning and implementation project for the Ventura River. This plan has subsumed all previous watershed-wide plans. It also assumes that the Matilija Dam removal is the linchpin project for any viable ecosystem recovery. It is community-based and has resulted in an unprecedented agreement between disparate stakeholders on a long-term strategy for ecosystem protection while meeting the safety and supply needs of the community-at-large.

Organizations that have participated in the study process to date include the following agencies and groups:

Federal Agencies

U.S. Fish and Wildlife Service
U.S. Bureau of Reclamation
U.S. Forest Service, Los Padres National Forest
U.S. Geological Survey
National Marine Fisheries Service
National Park Service
National Fish and Wildlife Foundation

Local Committees/Groups

Casitas Municipal Water District
Matilija Coalition
Matilija Environmental Science Area (MESA)
Friends of the Ventura River
American Rivers
Surfrider Foundation, Ventura Chapter
Southern California Wetlands Recovery Project
Fixing Stream Habitats Technical Assistance Program (FiSHTAP)
BEACON
California Trout
Aspen Environmental Group
Southern California Steelhead Coalition

State Agencies

California Coastal Conservancy
California Department of Fish and Game
California Regional Water Quality Control Board

County of Ventura Agencies

County Board of Supervisors
Public Works
Watershed Protection District
County Executive Office
Environmental and Energy Resources Department

City Governments

Ventura
Oxnard
Ojai
Port Hueneme

Universities

University of California Cooperative Extension California State University, Northridge

In addition to the Matilija Dam Ecosystem Restoration Study, other major planning efforts in the watershed, such as the Ventura River Watershed Protection Plan, and the Ventura River Parkway, are being coordinated by the appropriate watershed stakeholder groups such as the Watersheds Coalition of Ventura County, and the Ventura River Watershed Council. Each of these forums is completely open – providing for stakeholder cooperation and coordination and comprehensive consideration of watershed protection plans and strategies. All plans are coordinated through the Watersheds Coalition of Ventura County.

Santa Clara River Watershed

The Santa Clara River is the largest river system in Southern California that remains in a relatively natural state. The river, from its headwaters at Pacifico Mountain in the San Gabriel Mountains to its mouth at the Pacific Ocean, drains a total area of about 1634 square miles. Ninety percent of the Watershed consists of rugged mountains, ranging up to 8800 feet high; the remainder consists of valley floor and coastal plain. Much of the Watershed's higher elevations lie in the Los Padres National Forest.

The Santa Clara River is the only remaining unchannelized riparian and wildlife corridor in Southern California. Extensive patches of high quality riparian habitat are present along the length of the river and its tributaries. In addition to steelhead trout, the endangered, unarmored stickleback fish, is resident in the river. One of the largest of the Santa Clara River's tributaries, Sespe Creek, is designated a wild trout stream by the State of California and supports significant spawning and rearing habitat. The Sespe Creek is also designated a Wild and Scenic River. Piru and Santa Paula Creeks, which are tributaries to the Santa Clara River, also support good habitats for steelhead.

The climate in the watershed varies from moist, Mediterranean in Ventura County near the Pacific Coast, to near desert at the extreme eastern boundary in Los Angeles County. In the warmer valley interior, maximum temperatures during the summer often exceed 100°F. The moderating influence of the ocean results in lower temperatures along the coast. During winter, temperatures rarely descend to freezing except in the mountains and some interior valley locations. Approximately 90 percent of the annual precipitation occurs in the six months from November to April. Mean annual precipitation ranges from approximately 8 inches in the easternmost part of the Watershed to more than 34 inches near the headwaters of Sespe Creek.

Historic records indicate that the climatic and basin characteristics of the Santa Clara River generally produce intermittent flows. Flows increase rapidly during winter high intensity rainfalls producing severe floods. Floods occur every 5 to 10 years causing substantial damage. The floods of 1938 and 1969 were the worst naturally occurring floods in recorded history of the Santa Clara River causing highway closures, building and bridge damage, agricultural land loss due to erosion and severe sediment deposition.

Stream flow is seasonal except for controlled releases and wastewater treatment discharges. Dry for much of its length in summer, the river collects winter rainfall in northwest Los Angeles and northern Ventura Counties. The flow rate can rise in winter storm periods to over 100,000 cubic feet per second. In 1996 the 25-year flood flow rate was estimated to be 110,000 cubic feet per second (200,000 cubic feet per second for the 100-yr flood flow rate).

Many thousands of people within the Watershed obtain their water supply from groundwater basins within the Watershed. The main groundwater basins in the Santa Clara River watershed within Ventura County are:

1. The Piru groundwater basin.
2. The Fillmore groundwater basin.
3. The Santa Paula groundwater basin.
4. The Montalvo groundwater basin.
5. The Oxnard Plain groundwater basin.

In Ventura County, the Santa Clara River water is diverted at the Freeman Diversion Dam to canals that take the water to percolation ponds, where the water recharges the underground aquifers. The United Water Conservation District has a diversion right of 375 cubic feet per second at any given time with a maximum of 144,000 acre feet per year. As a result, major recharge of the Oxnard Plain basin is achieved keeping seawater intrusion at bay.

The most comprehensive watershed plan for this river system, to date, is the Santa Clara River Enhancement and Management Plan (SCREMP). Its purpose is to provide comprehensive guidance for the preservation, enhancement, and sustainability of the physical, biological, and economic resources that occur within the 500-year floodplain limits of the Santa Clara River mainstem. Implementation of the SCREMP is guided by the vision of the SCREMP stakeholders:

The Santa Clara River[SCREMP] Stakeholders, represented by the Project Steering Committee, recognize the Santa Clara River within its 500-year floodplain limits as a body of physical, biological, and economic resources of regional importance. The committee consisting of Federal, State, and local government agencies, industrial and commercial enterprises, and citizen groups endeavors to preserve the river as a precious natural asset for residents of the entire Watershed

while recognizing its multi-use resource potential that can provide for sustainable healthy human growth and development.

The Santa Clara River is managed, used, and protected so as to ensure the preservation, enhancement, and sustainability of its physical, biological, and economic resources. The river, its ecosystems, and its natural resources call for stewardship, and are recognized as exceptional in their value and quality by the local communities and the public in Southern California.

The SCREMP study process focused on improving coordination and information exchanges among all Steering Committee members and on resolving conflicting uses along the river. The study gave balanced consideration to habitat objectives, natural river processes, private property rights, economic interests, and community objectives.

Building upon the SCREMP is the Santa Clara River Watershed Protection Plan (SCRWPP) currently under development. It is an $8 million watershed-wide stakeholder effort funded by the Ventura County Watershed Protection District, the Los Angeles Department of Public Works, and the U.S. Army Corps of Engineers. Its purpose is to enhance and expand upon the SCREMP – taking SCREMP principles watershed-wide.

It is the goal of the watershed study to develop the necessary baseline data and analytical tools, and a realistic set of objectives, that will encourage management decisions that help the planners and developers in both Los Angeles and Ventura Counties by providing the tools necessary for addressing the cause and effect of upstream changes to the downstream areas within the Santa Clara River Watershed.

Resource data from SCREMP, such as biological data, aggregate data, cultural data, GIS data, water-related data, will be reviewed and utilized to form the basis of the existing conditions within the 500-year floodplain of the Santa Clara River. SCRWPP efforts will include the following:

1. Determine the effect of upstream urbanization on discharge frequency and quantity.
2. Investigate sediment load change as the upstream areas are urbanized.
3. The increase in flood flows can be damaging to developments near the riverbanks.
4. Determine the effect of upstream urbanization on bank erosions in the river.
5. Explore possible ways to remedy excessive erosion.
6. Investigate the increased sediment flow downstream and its effects on the coastal areas at the mouth of Santa Clara River.
7. Determine how the river floodplain boundaries change with increased urbanization.
8. Determine the effect of upstream urbanization on groundwater and water quality.
9. Evaluate the effects on the fish passage in the Santa Clara River with increased urbanization upstream.
10. Analyze the effect of the increased runoff on fish passage.
11. Determine if the change in the water quality will cause a detrimental effect on fish passage.
12. Reduce the impacts to water quality due to upstream development.
13. Determine the significance of changes to the daily flow and more frequent wet channel bed and wet channel banks in the Santa Clara River to the farming industry.
14. Identify best management practices that can be used for zoning purposes.

The SCRWPP plan includes a semi-formal structure that encourages the participation of the community. It will eventually provide a collaborative, comprehensive, coordinated (on a priority

basis) watershed protection plan applicable to both current and future conditions. It includes a large element of ongoing work for monitoring and adaptive management as do the other Ventura countywide watershed planning efforts.

Calleguas Creek Watershed

The Calleguas Creek Watershed area is 30 miles long, 14 miles wide and has an area of approximately 343 square miles (approximately 224,000 acres). It extends from the Los Angeles County line in the east to Mugu Lagoon and the Pacific Ocean to the south. The watershed includes Calleguas Creek, Conejo Creek, Arroyo Las Posas, Arroyo Conejo, Arroyo Santa Rosa and Arroyo Simi, along with Revolon Slough and Mugu Lagoon. The northern boundary of the Watershed is formed by the Santa Susana Mountains, South Mountain and Oak Ridge; the southern boundary is formed by the Simi Hills and Santa Monica Mountains. Calleguas Creek is an effluent dependent watershed. Discharges of municipal, agricultural, and urban wastewaters have increased surface flow in the Watershed, which has resulted in increased sedimentation and water pollution in the Mugu Lagoon.

Beginning in 1996, a broad coalition of local property owners, water and wastewater agencies, environmental groups, agricultural parties, governmental entities, and other private interests joined together to openly develop a management plan for the Calleguas Creek Watershed. The Calleguas Creek Watershed Steering Committee was formed to produce a plan for implementing a coordinated water quality and land use planning strategy for the Watershed as a whole.

To address the various issues and concerns in the Watershed, the Steering Committee was divided into subcommittees: land use, water resources/water quality, Habitat/Natural Resources/Recreation, Flood Protection and Sedimentation, Public Outreach and Education

Each subcommittee was assigned responsibilities and a set of issues to analyze. Based upon this analysis, each subcommittee was then provided recommendations for consideration by the Steering Committee. The result was the Calleguas Creek Watershed Management Plan (CCWMP).

The CCWMP represents a long- range comprehensive water resources strategy which is cost-effective and provides benefits for all participants. It addresses water resources as well as land use, economic development, open space preservation, enhancement and management and the provision of public facilities. A key element of the Plan is a set of action recommendations, developed by the stakeholders, which address watershed-wide issues and needs with salinity management a primary objective. The CCWMP examined existing data and acquired the missing data necessary to produce an accurate characterization of the Watershed. This enabled stakeholders to develop action recommendations based on the best available data and modeling.

The CCWMP is founded on a number of technical studies (in addition to the on-the-ground historical and empirical information). The studies include:

- The Calleguas Creek Characterization Study completed in 2000 by the wastewater management agencies and Calleguas Municipal Water District - water quality and flow data, and a compilation of other available sources of information.

- The City of Thousand Oaks compiled a large amount of data during its recent water rights application and EIR process for the Conejo Creek Diversion Project.
- The City of Thousand Oaks characterization study of Conejo Creek - water quality, flow, and use data.
- Water supply agencies and wastewater agencies - data about water sources, water use, wastewater discharges, and water reclamation projects.
- Groundwater management agencies and water suppliers - data on groundwater quality and quantity, groundwater use, interactions between surface water and groundwater.
- Ventura County - GIS mapping of the watershed including natural habitats and land-use.
- California Coastal Conservancy - Watershed Evaluation Study addressing habitat and species issues and a Wetlands Feasibility Study that developed an interactive GIS-based application focusing on identifying and ranking wetland restoration opportunities throughout the Watershed.
- Ventura County Watershed Protection District - expanded basemap information, hydrologic studies and models, detailed orthophotography and contour data for the Watershed, a Hydrology and Hydraulics model (MODRAT) for the entire Watershed, and a Sediment Transport model (FLUVIAL-12) for the entire Watershed.
- Ventura County Watershed Protection/FEMA – updated rainfall curves and updated floodplain maps for the Watershed.
- Ventura County Watershed Protection – Draft long-range (25-year) Integrated Watershed Protection Plan prioritized with funding needs.
- TMDL technical studies and water quality information obtained in recent years. TMDL technical studies have been completed as follows: toxicity, organic compounds/PCBs and metals.

Combined with the empirical data, the technical studies provide the necessary foundation for the effective macro- and micro level treatment of the Watershed. Using the data, stakeholders have formulated watershed project and program priorities designed to protect and enhance the Watershed's many resources while providing for the needs of the larger community.

For more information about the Calleguas Creek watershed planning efforts and the list of stakeholders, refer to the Calleguas Creek Watershed Management Plan (CCWMP) Volumes I and II. They can be found at the Calleguas website at: http://www.calleguas.com

Benefits of Implementation

Increased flooding, diminishing water availability and quality, and the loss of critical habitat for fish and wildlife are key issues facing the residents of Ventura County. The entire Region depends on its networks of rivers', streams' and creeks' production of reliable supplies of clean water to support communities, habitat, restore resources and provide for agricultural production. Historic land-use practices has placed many downstream property owners at risk and created a tension between public safety and resource protection needs. In order to move forward on increasingly critical water issues, citizens, interest groups, and government agencies must develop more comprehensive, collaborative, and coordinated ways of solving problems – this is an objective of the Ventura countywide watershed planning efforts and the Watersheds Coalition of Ventura County.

The Watersheds Coalition of Ventura County's approach toward comprehensive watershed planning will create a framework for watershed management that will support economic growth

and promote water availability and quality. It will also contribute to protection of fisheries and the health of the natural environment. The WCVC provides a valuable forum for informed local decision-making, and developing a comprehensive approach to managing water resources. The combined watershed planning efforts hope to accrue the following benefits countywide:

1. Improved regulatory permit processing.
2. Greater understanding and advancement of local priorities.
3. Improved decision-making at all levels of government.
4. Increased predictability of water resource decisions.
5. Increased access to Federal and State water resources funding programs.
6. Improved resource management for endangered and threatened species.
7. Economy of implementation of Federal and State water quality requirements.
8. Enhanced watershed awareness that results in the incorporation of watershed thinking into everyday planning processes.

The WCVC effort is purposely non-prescriptive in terms of both procedural and substantive requirements. Within broad constraints, interested stakeholders participate in flexible watershed planning - determining the planning processes, and assessing watershed resources, needs and priorities for long-term protection and management strategies.

Constraints to Implementation

There are a variety of constraints and challenges to the effective implementation of watershed planning. Development of a comprehensive watershed management plan, including recommendations for action and specific projects, can be time consuming and expensive. Depending upon the recommendations that result from the stakeholder and consensus driven planning process, the constraints and challenges can be minimized. Another constraint involves the consensus process itself. It is not always possible to reach consensus among diverse members, or reconcile conflicting interests or needs.

Related Websites and Documents

- California Regional Water Quality Control Board- Los Angeles Region. State of the Watershed- Report on Surface Water Quality of the Ventura River Watershed, October 2004 Version
- California Regional Water Quality Control Board- Los Angeles Region. State of the Watershed- Report on Surface Water Quality of the Santa Clara River, October 2004 Version
- California Regional Water Quality Control Board- Los Angeles Region. State of the Watershed- Report on Surface Water Quality of the Calleguas Creek Watershed, October 2004 Version
- Los Angeles County Department of Public Works, Ventura County Watershed Protection District and SCREMP Project Steering Committee, Public Review Draft. Santa Clara River Enhancement and Management Plan. Prepared by AMEC Earth & Environmental

- http://www.matilijadam.org/index.html
- http://www.calleguascreek.org/ccwmp/
- http://www.vcwatershed.com/
- http://www.vcwatershed.org/Projects_IWPP.html
- http://www.vcwatershed.org/Watersheds_Ventura.html
- http://www.vcwatershed.org/Watersheds_SantaClara.html
- http://www.vcwatershed.org/Watersheds_Calleguas.html
- http://www.vcwatershed.org/Watersheds_Malibu.html
- http://www.vcwatershed.org/Watersheds_Cuyama.html
- http://www.vcwatershed.org/Watersheds_Coastal.html
- http://www.coastalconservancy.ca.gov/

Recommended Future Actions

- There are several watershed planning efforts underway or proposed for implementation. A major watershed planning program has been proposed for the Ventura River Watershed. The development of a watershed protection plan has been proposed as part of a suite of projects for the Region, in the Step 2, Implementation Grant application.
- Coordinate IWPP effort with the WCVC IRWM planning and implementation.

Integration with Other Strategies

The Watersheds Coalition of Ventura County has determined that watershed planning addresses or is integral to all other water management strategies in one way or another.

Possible Funding Sources

- State and Federal funding
- Grant funding
- Current and future bond funding

5.3 Integration of Water Management Strategies

Included in this IRWMP is a thorough discussion of all the water management strategies contained in the State's IRWMP Guidelines. As can be seen in Table 6-2, many of these strategies overlap and are linked to one another.

This IRWMP is the result of a coordinated effort among many local agencies and stakeholders. The process has included identification of major local water related issues and problems, identification of key objectives of the coordinated Countywide program guided by the WCVC Group; and identification of cost effective and feasible projects, programs and studies to address those objectives. An important element is the ongoing collaboration among local agencies to continue or establish programs, studies and plans which will carry on the long tradition of regional, cooperative water management in Ventura County, regardless of whether State/Federal funds are available. Some of these programs include: regional water use efficiency, water quality studies and projects, wastewater recycling studies, groundwater management, habitat restoration, stormwater pollution prevention and flood management.

The Plan will be implemented through efforts both at the Regional level, and the watershed level through the efforts of the individual watershed committees. This IRWMP contains recommendations for additional future programs, projects and actions that build upon or enhance existing water management efforts, or create new, innovative programs. Some of these programs may be regional in nature, some may apply only to particular watersheds. The WCVC will also provide the institutional structure for implementation of the Plan and related projects.

In addition to these implementation projects, the WCVC will pursue other water management priorities, as set forth in the approved objectives. These include water use efficiency, recycling, and land use controls. The implementing agencies will be the various water and sanitary districts, Cities, the County and Non-Governmental Organizations (NGO's) that submitted the projects.

Δ The 2007 update of this IRWMP will include a more thorough discussion of how the strategies and projects are integrated with each other and with the objectives of the Region and each of the Watersheds. This IRWMP is an ongoing process and the document will continue to grow and change as the local stakeholder process evolves and the needs in the Region change.

SECTION 6.0 IMPLEMENTATION PROJECTS AND PROJECT PRIORITIES

Section 5 contains a thorough discussion of water management strategies and opportunities for implementation in the Region. There are many programs and projects underway to address these strategies and meet the IRWMP objectives. This section (Section 6) addresses proposed implementation projects for the near-term and long-term future, which will further Plan objectives, and help meet Statewide and regional priorities.

6.1 Types of Projects and Programs

The Watersheds Coalition of Ventura County reviewed a wide variety of types of projects and programs for possible implementation in the Region. These types of projects/programs are listed in the Table 6-1 below and are grouped into categories (e.g. water supply enhancement, water quality improvement, land use planning, etc). This list provided a starting point for selection of actual projects to be pursued in the Region to address our local objectives and the water management strategies described in Section 5.

Table 6-1

	PROJECT/PROGRAM TYPE
	Regional Programs (Applies to All Strategies)
1	Coordination of hydrologic and hydrogeomorphic models among agencies
2	Coordination, monitoring, assessment, characterization, analysis and enforcement among agencies (e.g. GIS spatial database)
3	Public-private partnerships
4	Outreach and education efforts
5	Regional coordination of water use efficiency and other programs
6	Research applicability of new, innovative solutions
7	Update IRWMP
8	Watershed Planning
	Water Supply Enhancement
	Water Distribution, Treatment and Storage
9	Rehabilitation, replacement or removal of existing facilities
10	Improved operational efficiency
	Surface Water
11	Surface reservoir or storage tank
12	Surface water diversion
	Groundwater

13	Injection wells to augment groundwater basins storage
14	Groundwater extraction facilities (wells)
15	Aquifer storage and recovery
16	Groundwater management and planning policies
17	Groundwater replenishment including spreading grounds and injection wells
	Surface and Groundwater
18	Conjunctive management of supplies
19	More efficient management of supplies
	Recycled Water
20	Recycled wastewater for irrigation or other beneficial uses
21	Increased uses for recycled water through policy change and education
	Other Sources and Options
22	Imported water
23	Desalination of brackish water or seawater
24	Rainwater collection systems (cisterns)
25	Greywater systems
26	Water banking, exchange and transfer projects
27	Inter-tie projects
	Water Demand Management (Efficiency)
28	Urban Water Use Efficiency Measures *BMP 1: Residential Survey Programs BMP 2: Residential Plumbing Retrofit BMP 3: System Water Audits BMP 4: Metering w/Commodity Rates BMP 5 Large Landscape Conservation BMP 6: High Efficiency Clothes Washers BMP 7: Public Information Programs BMP 8: School Education Programs BMP 9: Commercial Industrial Institutional BMP 10: Wholesaler Agency Assistance Programs BMP 11: Conservation Pricing BMP 12: Conservation Coordinator BMP 13: Water Waste Prohibitions BMP 14: Residential Ultra Low Flush Toilet Replacement Programs*
29	Drought contingency and emergency planning
30	Urban water management planning
31	Agricultural water-use efficiency measures (See Section 5, Water Efficiency for List of BMPs)
	Water Quality Improvement
	Sewer Treatment and Discharge Facilities
32	Build sewer collection and treatment
33	Rehabilitate or upgrade sewer treatment collection and discharge systems
34	Relocate and protect sewer collection, treatment and discharge systems - remove from vulnerable locations
	Contaminant (TMDL) Management
35	Emerging contaminant problems - monitoring and management

36	Control and/or enforce prohibitions on illegal discharge of controlled or toxic substances
37	Leaking underground storage tank remediation
38	TMDL development - Nutrients**, Toxicity**, Historic Pesticides**, Metals/Selenium**, Bacteria, Salts, Sedimentation/Siltation, Trash
39	TMDL Monitoring
	TMDL/BMP Implementation
40	Salts: remove or prohibit on-site water softening devices and other measures
41	Nutrients: replacement of problematic septic tank systems with sewer hook-ups, fertilizer application reduction and other measures
42	Future TMDL Implementation (e.g. trash, toxicity, historic pesticides, etc)
	Stormwater Management and Treatment
43	Low flow stormwater treatment
	General Water Quality Programs
44	Seawater intrusion barrier injection wells
45	Nonpoint source pollution control
46	Point-source pollution control
47	Pump and treat water for quality enhancement
48	Removal of pollutants or contaminants in drinking water supplies (source)
49	Water quality monitoring (requires coordination among sampling entities to be effective)
50	Brownfields remediation (mildly contaminated areas)
51	Wellhead protection (e.g. Proper well abandonment, development restrictions)
	Flood Management Projects
	Flood Protection Facilities and Maintenance
52	Levee construction
53	Channel improvement projects
54	Detention basins
55	Debris basins
56	Ongoing facility maintenance
57	Flood hazard mapping
58	Removal of hazards or facilities from floodways
59	Storm monitoring and modeling - flows
60	Erosion control/bank stabilization and protection
61	Land acquisition for watercourse preservation, restoration and flood management
	Ecosystem Protection and Restoration Strategies
62	Conservation Plans (a blueprint for protection of an ecosystem watershed or species)
63	Protect and enhance native ecosystem diversity

64	Control, remove and prevent invasive species
65	Protect existing habitats from degradation
66	Creation of new wetlands in appropriate hydrologic settings
67	Protect, restore and enhance existing wetlands and waterbodies
68	Urban stream restoration and revitalization
69	Land acquisition and/or easements for protection and restoration of habitat areas landscape linkages/wildlife movement
70	Protect and restore fish and wildlife migration corridors and landscape linkages; where necessary create or modify structures to facilitate fish and wildlife movement, such as fish ladders, road undercrossings, etc.
71	Restore natural hydrograph and sediment transport in local watercourses
72	Mitigation banking to offset impacts
73	Identify and collect biological resources data for comprehensive database: 1) Ecosystem function analysis 2)Water quantity and quality needs of fish and wildlife; 3)Evaluate multiple scale habitat needs of aquatic and riparian dependent species
74	Provide for long-term stewardship of natural resources, especially public land: staff, funding, organizational structure (district or conservancy) monitoring and enforcement
	Recreation and Public Access
75	Develop and maintain active and passive recreation areas related to water resources
76	Provide for appropriate public access
	Land Use Planning Programs
77	Updates and modifications to land use policies (i.e. general plan, specific plans)
78	Watercourse setback ordinances or policies (for urban and agricultural uses)
79	Riparian corridor buffers
80	Reduce impervious surface areas in new development
81	Floodplain development restrictions
82	Sensitive biological areas overlay zones
83	Evaluation of water-related impacts during development review
84	Evaluate process for reconstruction following emergencies (floods, landslides)
85	Create incentives and/or eliminate disincentives for land owners to protect and restore habitats and ecosystems on their property

Consistency with Water Management Strategies

Each of these types of projects and programs was discussed in detail at WCVC meetings and reviewed for consistency with the water management strategies. Please see Table 6-2 for a matrix containing an assessment of which of the water management strategies might be positively impacted through implementation of each type of project or program.

Table 6-2 Water Management Strategies Matrix By Project Type

	Project/Program Type	Applicable Water Management Strategies																				
		Ecosystem Restoration	Habitat Protection and Improvement	Water Supply Reliability	Flood Management	Groundwater Management	Recreation and Access	Stormwater Capture (and Management)	Water Conservation (Water Use Efficiency)	Water Quality Protection	Water Recycling	Wetlands Creation/Enhancement	Conjunctive Use (Management)	Desalination	Imported Water***	Land Use Planning	NPS Pollution Control	Surface Storage (Potable and Non-Potable)	Watershed Planning	Water/Wastewater Treatment	Water Transfers	*Water Supply Enhancement**
	Regional Programs (Applies to All Strategies)																					
1	Coordination of hydrologic and hydrogeomorphic models among agencies																					
2	Coordination, monitoring, assessment, characterization, analysis and enforcement among agencies (eg. GIS spatial database)																					
3	Public-private partnerships																					
4	Outreach and education efforts																					
5	Regional coordination of efficiency and other programs																					
6	Research applicability of new, innovative solutions																					
7	Update IRWMP																					
8	Watershed Planning																					
	Water Supply Enhancement																					
	Water Distribution,Treatment and Storage																					
9	Rehabilitation, replacement or removal of existing facilities	✓	✓	✓		✓	✓	✓	✓	✓			✓	✓	✓				✓	✓	✓	✓
10	Rehabilitation, replacement or removal of existing facilities			✓		✓		✓	✓	✓			✓		✓				✓	✓	✓	✓
	Surface Water																					
11	Surface reservoir or storage tank	✓	✓	✓	✓	✓	✓	✓				✓	✓		✓			✓	✓		✓	✓
12	Surface water diversion	✓	✓	✓	✓	✓		✓		✓		✓	✓					✓	✓		✓	✓
	Groundwater																					
13	Injection wells to augment groundwater basins storage			✓		✓				✓	✓		✓		✓				✓	✓	✓	✓
14	Groundwater extraction facilities (wells)			✓		✓				✓			✓		✓				✓	✓	✓	✓

Table 6-2 Water Management Strategies Matrix By Project Type

	Project/Program Type	Applicable Water Management Strategies																				
		Ecosystem Restoration	Habitat Protection and Improvement	Water Supply Reliability	Flood Management	Groundwater Management	Recreation and Access	Stormwater Capture (and Management)	Water Conservation (Water Use Efficiency)	Water Quality Protection	Water Recycling	Wetlands Creation/Enhancement	Conjunctive Use (Management)	Desalination	Imported Water***	Land Use Planning	NPS Pollution Control	Surface Storage (Potable and Non-Potable)	Watershed Planning	Water/Wastewater Treatment	Water Transfers	*Water Supply Enhancement**
15	Aquifer storage and recovery			✓		✓		✓		✓	✓		✓	✓	✓				✓	✓	✓	✓
16	Groundwater management and planning policies			✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	Groundwater replenishment including spreading grounds and injection wells	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
	Surface and Groundwater																					
18	Conjunctive management of supplies			✓	✓	✓		✓		✓	✓		✓	✓	✓			✓	✓	✓	✓	✓
19	More efficient management of supplies			✓		✓		✓	✓	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓
	Recycled Water																					
20	Recycled wastewater for irrigation or other beneficial uses	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓		✓	✓		✓	✓	✓		✓
21	Increased uses for recycled water through policy change and education	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓		✓	✓		✓	✓	✓		✓
	Other Sources and Options																					
22	Imported water	✓	✓	✓		✓	✓			✓	✓	✓	✓		✓		✓	✓	✓		✓	✓
23	Desalination of brackish water or seawater	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
24	Rainwater collection systems (cisterns)			✓		✓		✓	✓									✓				✓
25	Greywater systems								✓		✓											✓
26	Water banking, exchange and transfer projects	✓	✓	✓		✓	✓	✓		✓		✓	✓		✓	✓		✓	✓	✓	✓	✓
27	Inter-tie projects			✓		✓				✓	✓		✓		✓			✓	✓		✓	✓
	Water Demand Management (Efficiency)																					

Table 6-2 Water Management Strategies Matrix By Project Type

	Project/Program Type	Applicable Water Management Strategies																				
		Ecosystem Restoration	Habitat Protection and Improvement	Water Supply Reliability	Flood Management	Groundwater Management	Recreation and Access	Stormwater Capture (and Management)	Water Conservation (Water Use Efficiency)	Water Quality Protection	Water Recycling	Wetlands Creation/Enhancement	Conjunctive Use (Management)	Desalination	Imported Water***	Land Use Planning	NPS Pollution Control	Surface Storage (Potable and Non-Potable)	Watershed Planning	Water/Wastewater Treatment	Water Transfers	*Water Supply Enhancement**
28	Urban Water Use Efficiency Measures *BMP 1: Residential Survey Programs* *BMP 2: Residential Plumbing Retrofit* *BMP 3: System Water Audits* *BMP 4: Metering w/Commodity Rates* *BMP 5 Large Landscape Conservation* *BMP 6: High Efficiency Clothes Washers* *BMP 7: Public Information Programs* *BMP 8: School Education Programs* *BMP 9: Commercial Industrial Institutional* *BMP 10: Wholesaler Agency Assistance Programs* *BMP 11: Conservation Pricing* *BMP 12: Conservation Coordinator* *BMP 14: Residential Ultra Low Flush Toilet Replacement Programs*			✓		✓			✓	✓						✓	✓		✓	✓		✓
29	Drought contingency and emergency planning		✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
30	Urban water management planning			✓		✓		✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
31	Agricultural water-use efficiency measures (add BMPs)	✓	✓	✓		✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Water Quality Improvement																						
	Sewer Treatment and Discharge Facilities																					
32	Build sewer collection and treatment	✓	✓	✓	✓	✓	✓			✓	✓	✓				✓	✓		✓	✓		✓
33	Rehabilitate or upgrade sewer treatment collection and discharge systems	✓	✓	✓	✓	✓	✓			✓	✓	✓				✓	✓		✓	✓		✓
34	Relocate and protect sewer collection, treatment and discharge systems - remove from vulnerable locations	✓	✓	✓	✓		✓	✓		✓	✓	✓				✓	✓		✓	✓		✓

Table 6-2 Water Management Strategies Matrix By Project Type

	Project/Program Type	Applicable Water Management Strategies																				
		Ecosystem Restoration	Habitat Protection and Improvement	Water Supply Reliability	Flood Management	Groundwater Management	Recreation and Access	Stormwater Capture (and Management)	Water Conservation (Water Use Efficiency)	Water Quality Protection	Water Recycling	Wetlands Creation/Enhancement	Conjunctive Use (Management)	Desalination	Imported Water***	Land Use Planning	NPS Pollution Control	Surface Storage (Potable and Non-Potable)	Watershed Planning	Water/Wastewater Treatment	Water Transfers	*Water Supply Enhancement**
	Contaminant (TMDL) Management																					
35	Emerging contaminant problems - monitoring and management	✓	✓	✓		✓		✓		✓	✓	✓	✓				✓			✓		
36	Control/enforce prohibitions on illegal discharge of controlled or toxic substances	✓	✓	✓		✓		✓		✓	✓	✓	✓				✓			✓		
37	Leaking underground storage tank remediation			✓		✓				✓		✓	✓									
38	TMDL development - Nutrients**, Toxicity**, Historic Pesticides**, Metals/Selenium**, Bacteria, Salts, Sedimentation/Siltation, Trash	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
39	TMDL Monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TMDL/BMP Implementation																					
40	Salts: remove or prohibit on-site water softening devices and other measures			✓		✓				✓	✓	✓	✓	✓		✓			✓			✓
41	Nutrients: replacement of problematic septic tank systems with sewer hook-ups, fertilizer application reduction and other measures	✓	✓			✓		✓		✓	✓		✓				✓		✓	✓		✓
42	Future TMDL Implementation (eg. trash, toxicity, historic pesticides, etc)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Stormwater Management and Treatment																					
43	Low flow stormwater treatment	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓			✓		✓	✓		✓
	General Water Quality Programs																					
44	Seawater intrusion barrier injection wells			✓		✓				✓	✓		✓	✓	✓				✓			✓
45	Non-Point source pollution control	✓	✓	✓		✓	✓	✓		✓		✓	✓			✓	✓	✓	✓	✓		✓
46	Point-source pollution control	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓			✓		✓	✓	✓		✓
47	Pump and treat water for quality enhancement			✓		✓				✓	✓		✓	✓			✓		✓			✓
48	Removal of pollutants or contaminants in drinking water supplies (source)			✓		✓				✓	✓	✓	✓	✓					✓			
49	Water quality monitoring (requires coord. among sampling entities to be effective)			✓	✓	✓		✓		✓			✓	✓			✓		✓	✓		

Table 6-2 Water Management Strategies Matrix By Project Type

	Project/Program Type	Applicable Water Management Strategies																				
		Ecosystem Restoration	Habitat Protection and Improvement	Water Supply Reliability	Flood Management	Groundwater Management	Recreation and Access	Stormwater Capture (and Management)	Water Conservation (Water Use Efficiency)	Water Quality Protection	Water Recycling	Wetlands Creation/Enhancement	Conjunctive Use (Management)	Desalination	Imported Water***	Land Use Planning	NPS Pollution Control	Surface Storage (Potable and Non-Potable)	Watershed Planning	Water/Wastewater Treatment	Water Transfers	*Water Supply Enhancement**
50	Brownfields remediation (mildly contaminated areas)	✓	✓	✓		✓				✓		✓	✓				✓		✓			
51	Wellhead protection (eg. Proper well abandonment, development restrictions)			✓		✓		✓		✓	✓		✓	✓			✓		✓			
Flood Management Projects																						
	Flood Protection Facilities and Maintenance																					
52	Levee construction		✓	✓	✓		✓	✓				✓	✓			✓			✓			
53	Channel improvement projects	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓			✓	✓		✓			
54	Detention basins	✓	✓		✓	✓	✓	✓		✓		✓	✓			✓		✓	✓			
55	Debris basins	✓	✓		✓	✓	✓	✓		✓		✓	✓			✓	✓		✓			
56	Ongoing facility maintenance		✓	✓	✓	✓	✓	✓		✓		✓	✓			✓	✓		✓			
57	Flood hazard mapping	✓	✓		✓		✓	✓				✓				✓			✓			
58	Removal of hazards or facilities from floodways	✓	✓	✓	✓		✓	✓		✓		✓	✓			✓			✓			
59	Storm monitoring and modeling - flows	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓			✓			✓			
60	Erosion control/bank stabilization and protection	✓	✓		✓		✓	✓		✓		✓				✓	✓		✓			
61	Land acquisition for watercourse preservation, restoration and flood management	✓	✓	✓	✓	✓	✓	✓		✓		✓				✓	✓		✓			
Ecosystem Protection and Restoration Strategies																						
62	Conservation Plans (a blueprint for protection of an ecosystem watershed or species)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
63	Protect and enhance native ecosystem diversity	✓	✓		✓	✓	✓		✓	✓	✓	✓			✓	✓			✓			✓

Table 6-2 Water Management Strategies Matrix By Project Type

	Project/Program Type	Applicable Water Management Strategies																				
		Ecosystem Restoration	Habitat Protection and Improvement	Water Supply Reliability	Flood Management	Groundwater Management	Recreation and Access	Stormwater Capture (and Management)	Water Conservation (Water Use Efficiency)	Water Quality Protection	Water Recycling	Wetlands Creation/Enhancement	Conjunctive Use (Management)	Desalination	Imported Water***	Land Use Planning	NPS Pollution Control	Surface Storage (Potable and Non-Potable)	Watershed Planning	Water/Wastewater Treatment	Water Transfers	*Water Supply Enhancement**
64	Control, remove and prevent invasive species	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓			✓			✓
65	Protect existing habitats from degradation		✓		✓		✓		✓	✓	✓	✓			✓	✓	✓		✓			
66	Creation of new wetlands in appropriate hydrologic settings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		✓
67	Protect, restore and enhance existing wetlands and waterbodies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		✓
68	Urban stream restoration and revitalization	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		✓
69	Land acquisition and/or easements for protection and restoration of habitat areas landscape linkages/wildlife movement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		✓
70	Protect and restore fish and wildlife migration corridors and landscape linkages; where necessary create or modify structures to facilitate fish and wildlife movement, such as fish ladders, road undercrossings, etc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		✓
71	Restore natural hydrograph and sediment transport in local watercourses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		✓
72	Mitigation banking to offset impacts	✓	✓				✓	✓	✓	✓		✓	✓			✓	✓	✓	✓	✓		✓
73	Identify and collect biological resources data for comprehensive database: 1) Ecosystem function analysis 2)Water quantity and quality needs of fish and wildlife; 3)Evaluate multiple scale habitat needs of aquatic and riparian dependent species	✓	✓		✓	✓	✓			✓		✓				✓	✓		✓			
74	Provide for long-term stewardship of natural resources, especially public land : staff, funding, organizational structure (district or conservancy) monitoring and enforcement	✓	✓				✓	✓	✓	✓		✓	✓			✓	✓	✓	✓	✓		✓
Recreation and Public Access																						
75	Develop and maintain active and passive recreation areas related to water resources.		✓		✓	✓	✓	✓		✓	✓	✓			✓	✓		✓	✓			
76	Provide for appropriate public access		✓	✓			✓			✓		✓				✓		✓	✓			

Table 6-2 Water Management Strategies Matrix By Project Type

	Project/Program Type	Applicable Water Management Strategies																				
		Ecosystem Restoration	Habitat Protection and Improvement	Water Supply Reliability	Flood Management	Groundwater Management	Recreation and Access	Stormwater Capture (and Management)	Water Conservation (Water Use Efficiency)	Water Quality Protection	Water Recycling	Wetlands Creation/Enhancement	Conjunctive Use (Management)	Desalination	Imported Water***	Land Use Planning	NPS Pollution Control	Surface Storage (Potable and Non-Potable)	Watershed Planning	Water/Wastewater Treatment	Water Transfers	*Water Supply Enhancement**
Land Use Planning Programs																						
77	Updates and modifications to land use policies (i.e. general plan, specific plans)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
78	Watercourse set-back ordinances or policies (for urban and agricultural uses)	✓	✓	✓	✓			✓		✓		✓				✓	✓		✓			
79	Riparian corridor buffers	✓	✓				✓	✓		✓		✓				✓	✓		✓			
80	Reduce impervious surface areas in new development			✓	✓	✓		✓		✓		✓				✓	✓		✓			✓
81	Floodplain development restrictions	✓	✓		✓		✓	✓		✓		✓				✓			✓			
82	Sensitive biological areas overlay zones	✓	✓				✓			✓		✓				✓			✓			
83	Evaluation of water related impacts during development review	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓		✓			✓
84	Evaluate process for reconstruction following emergencies (floods, landslides)	✓	✓		✓		✓	✓		✓		✓				✓	✓		✓			
85	Create incentives and/or eliminate disincentives for land owners to protect and restore habitats and ecosystems on their property	✓	✓	✓	✓	✓	✓	✓		✓		✓				✓	✓		✓			✓

*** Not one of the Strategies required by the Proposition 50 IRWMP Guidelines**

**** Have already been adopted in some watersheds**

*****May reduce dependence on or result in more efficient management of Imported Water**

✓ Denotes that this type of project/program *may* positively benefit this strategy when properly designed

6.2 Proposed Implementation Projects

How Projects Were Selected

The stakeholder groups (Calleguas Creek Steering Committee and Ventura Countywide Integrated Regional Water Management Group and now the Watersheds Coalition of Ventura County) have guided the selection of implementation projects. The WCVC will continue to have a key role in this process. Stakeholders first assembled a list over 150 potential implementation projects within the Region, and then proceeded to prioritize them. The prioritization was completed primarily based on the Calleguas Creek Integrated Watershed Management Plan's and the Ventura Countywide IRWM Interim Plan's Goals and Objectives. These goals are closely intertwined and all of the projects address more than one goal. In addition to these, the stakeholders weighed such factors as Statewide priorities, number of people benefiting, the urgency of the need, the environmental benefits and environmental justice (whether the project was in a Disadvantaged Community[1]). Further considerations included maintaining a balance of projects both geographically and in terms of types of water management strategies and whether the projects were foundational to implementing other priority projects. Based on this process, the list was narrowed down to the 11 projects that are included in the Step 2 Implementation Grant. These projects are listed later in this section.

The WCVC identified five major goals, listed and described below, to provide guidance in selecting and prioritizing implementation projects. As can be seen from the discussions, these categories represent somewhat artificial distinctions between issues which are closely interrelated and difficult to isolate.

1. **Reduce dependence on imported water and protect, conserve and augment water supplies.**

   The Region's water supply comes primarily from two sources; surface flows and groundwater. Calleguas Municipal Water District imports State Water, which is supplied to the Cities within its boundaries. The primary issue with surface flow is capturing and storing the annual storm flows, either by surface storage in lakes or reservoirs or through groundwater basin recharge. Key concerns with groundwater supplies are maintaining the supply, through recharge, protecting groundwater basins from pollution, and improving the quality of the groundwater, which is naturally high in Total Dissolved Solids (TDS). Water supply issues also include providing the infrastructure to collect, treat, store, and transport the water, and the need to provide back-up systems that will protect water users from the Region's periodic droughts. Last but not least, implementation of this goal includes measures to use existing water supplies more efficiently.

2. **Protect and improve water quality.**

[1] Ventura County does not have any Census Tracts with a Median Household Income (MHI) of $37,994 or less. However, the County Watershed Protection District recently undertook an Income Survey, based on methodology approved by the State Water Resources Control Board, for the area within its Waterworks District #16, which is essentially coterminous with the community of Piru. MHI was found to be $21,000. Based on this data, the SWRCB recently approved a Small Community Grant as a Disadvantaged Community for Piru. An equivalent study was conducted for the community of El Rio, and MHI was found to be $24,000. For these reasons, the communities of Piru and El Rio are treated as Disadvantaged Communities, although no application for funding match is being made on this basis.

Water quality issues are closely related to water supply, since the water supplies must be of sufficient quality to permit the use of the water for its intended purpose. As noted above, specific water quality issues involve reducing or avoiding pollution from urban and agricultural uses and treating groundwater to eliminate the naturally high TDS levels.

3. Protect people, property, and the environment from adverse flooding impacts.

Management of floodwater flows is intricately involved with water supply and environmental habitat protection/ecosystem restoration, as floodwaters are retained to provide for wetlands and natural habitats and to recharge groundwater basins. Land use measures to control the types and intensities of development that occur in flood-prone areas are key. One approach to this is through widely applicable land use restrictions. A second approach is to acquire strategically situated properties, remove inappropriate land uses, and establish natural habitats where surface waters can be naturally filtered and allowed to disperse into the groundwater basins. Both of these approaches reduce the need for expensive flood control structures. To the extent flood water can be diverted, captured and treated it solves water quality challenges and creates new supply.

4. Protect and restore habitat and ecosystems in watersheds.

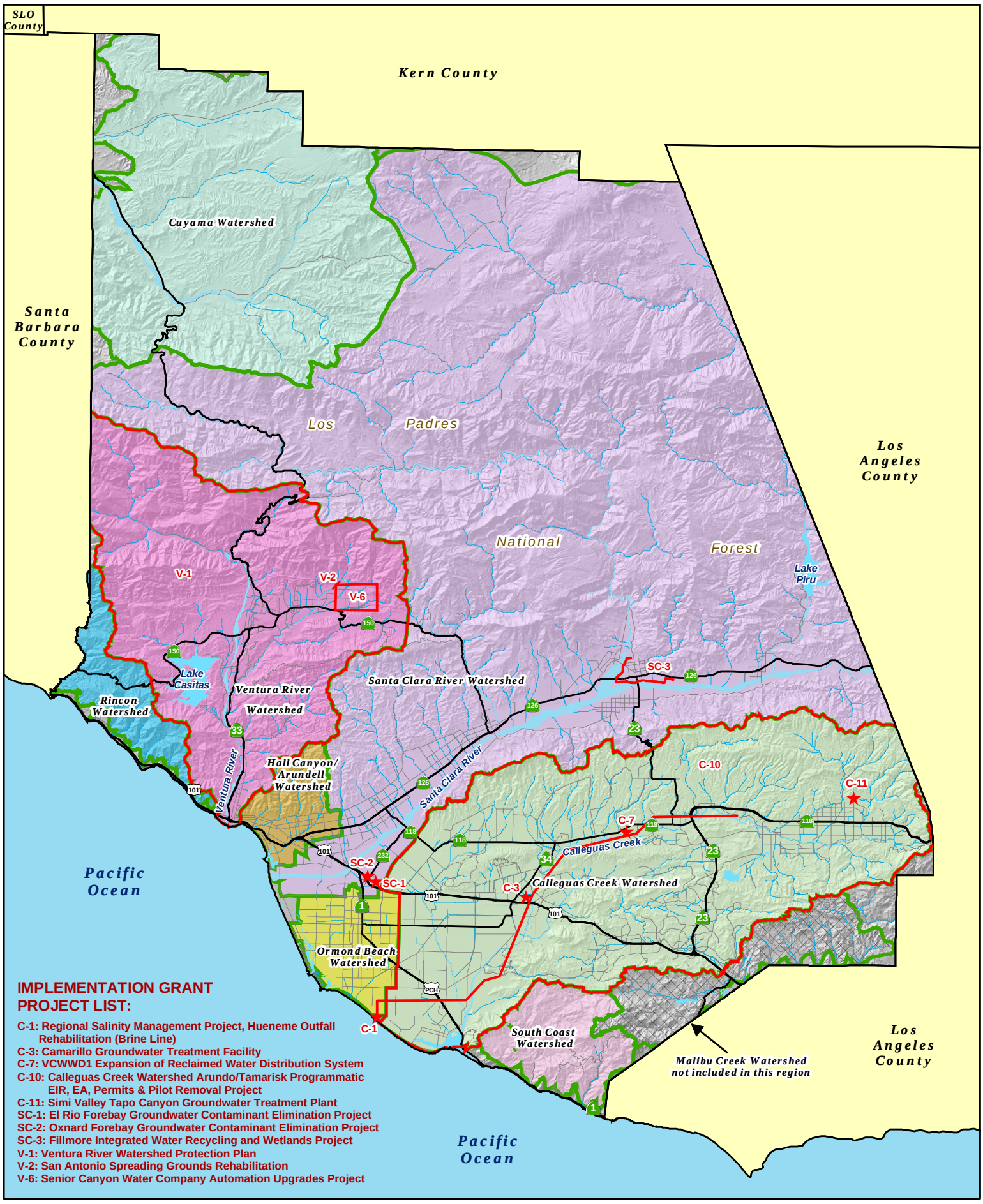
The use of water supplies to protect natural habitat and restore ecosystems is being accepted as a need equivalent to urban and agricultural uses. In fact, these uses are interrelated as wetlands may often function to filter out urban and particularly agricultural pollutants, and to provide groundwater recharge. Within the Region, this goal involves identifying and prioritizing important natural habitats and ecosystems for restoration and preservation, while factoring in additional considerations such as floodwater management and groundwater recharge.

5. Provide water-related recreational, public access, and educational opportunities.

Effective water resource management can also provide additional recreational benefits that foster respect and understanding of the region's water supply and water quality needs. Ventura County is bounded on one side by the Pacific Ocean, and residents have ample ocean-related recreational opportunities in their backyard, however, there are additional opportunities for swimming, hiking, biking, and/or boating in and along the region's fresh water reservoirs, rivers and streams that could help encourage greater stewardship of the region's watersheds. Access to these resources can offer significant educational opportunities and create public awareness about the environment and water–dependent habitats and species.

A. Step 2 Implementation Grant Application Projects, By Watershed (Near-Term)

The following projects were identified for near-term funding requests and were included in the Step 2 application submitted in June 2006 based on their high priority in addressing critical local needs and Statewide priorities, their applicability for Proposition 50 Implementation Grant funding, and their readiness to proceed. They address local objectives, Statewide priorities and will result in significant benefits to local watersheds. Please see Map #8 for project locations. These projects are identified for possible future funding, and are therefore subject to separate environmental review if and when they are funded. Please see Step 2 Application for more details.



VENTURA COUNTY
RESOURCE MANAGEMENT AGENCY
MAPPING SERVICES - GIS

WATERSHEDS COALITION OF VENTURA COUNTY
MAP 8 - PROJECT LOCATIONS

10 Miles

N

CALLEGUAS CREEK WATERSHED PROJECTS

C-1 Calleguas Regional Salinity Management Project, Hueneme Outfall Rehabilitation (Brine Line)

Project Description: The Brine Line is a cornerstone project integral to the construction of a series of brackish groundwater desalters, but also necessary for overall salt management in the Watershed. The Brine Line will provide brine disposal for the Camarillo Groundwater Treatment Facility (GWTF) (C-3) and potentially the Tapo Canyon Groundwater Treatment Facility (TCWTP) (C-11), both contained in this Proposal, as well as many other desalters described in the IRWMP. These projects cannot be implemented without the Brine Line, as the Brine Line provides the sole mechanism for brine disposal in the Watershed. Therefore, there is a strong linkage between the Brine Line and the various desalter projects during both implementation and operation.
In addition to the projects contained within the IRWMP, the Brine Line will also facilitate wetlands restoration efforts within Ventura County, by making recycled water and brines collected available for coastal wetlands restoration efforts. The Brine Line can provide a much needed water supply to sustain restored wetlands. The reliability of the water supply from the Brine Line adds significantly to the feasibility of the various wetlands projects being considered in Ventura County. Removal of arundo and tamarisk from the Watershed to be achieved by the Calleguas Arundo Removal Project (C-10) will also benefit these wetlands restoration efforts, by eradicating non-native species that can damage wetlands habitats.

C-3 Camarillo Groundwater Treatment Facility

Project Description: The Camarillo Groundwater Treatment Facility is proposed by the City of Camarillo Public Works Department and meets three of IRWMP objectives. The Camarillo Groundwater Treatment Facility is a 4 mgd brackish groundwater treatment facility. The proposed facility is in Camarillo and will be owned by the City. Reverse osmosis (RO) treatment technology will be used to produce potable quality water. Brine waste, containing concentrated salts from the RO process, would be discharged to the Brine Line and exported out of the Watershed. Camarillo currently delivers a combination of local groundwater and imported water to its customers. Imported water is provided by Calleguas. Despite the availability of groundwater extraction rights, the relatively high TDS, chloride, iron, and manganese concentrations in the groundwater require that it be blended with imported water before it can be used for potable purposes. The Pleasant Valley Groundwater Basin has experienced an ongoing decline in water quality, which is suspected to originate from overflow of poor quality water from upstream basins. Declining water quality has reduced the effectiveness of blending, such that Camarillo has removed one of its wells from regular service and decreased pumping from the remaining two wells. Over the past few years, because of water quality issues, Camarillo has not pumped its full Fox Canyon Groundwater Management Agency (FCGMA) allocation and has increased its use of imported water.

The construction of desalters, like the Camarillo Groundwater Treatment Facility, would allow brackish water that is currently unusable to be used beneficially, increasing water supply reliability and removing salts through brine disposal outside of the Watershed.

C-7: VCWWD1 Recycled Water System, Phase II - VCWWD1 Recycled Project

Project Description: The Expansion of Recycled Water Distribution System is proposed by VCWWD1 (Ventura County Water Works District #1) and would meet two IRWMP objectives of reducing dependence on imported water and improving water supply reliability. The Moorpark

Wastewater Treatment Plant (MWTP) is owned and operated by VCWWD1. The facility serves the City of Moorpark and surrounding unincorporated areas. The plant has a secondary treatment capacity of 3.0 mgd and tertiary treatment capacity of up 1.5 mgd. Tertiary treated effluent can be recycled for beneficial reuse. Currently, recycled water is being provided to one golf course off of Grimes Canyon Road. However, a Recycled Water Feasibility Study completed in 1990 demonstrated that there is a large additional potential market for recycled water from the MWTP.

Phase II of this project is intended to expand VCWWD1's recycled water distribution system to provide recycled water for use at agricultural and/or additional landscape irrigation reuse sites in the VCWWD1 service area. The project consists of a single reservoir and pipelines to distribute recycled water to agricultural and nursery customers in the service area. The reservoir will replace the existing recycled water storage ponds. The pipelines would include approximately 2065 LF of 8- to 12-inch (North Branch) and 1500 LF of 8-inch (South Branch). The project will also include extending the existing East Branch pipeline 2660 LF southward along Hitch Blvd. The proposed project would enhance VCWWD1's ability to deliver recycled water in lieu of potable water, where possible.

C-10 – Calleguas Creek Watershed Arundo/Tamarisk Programmatic EIR/EA, Permits and Pilot Removal Project

Project Description: The Calleguas Creek Watershed Arundo/Tamarisk Programmatic EIR/EA, Permits and Pilot Removal Project has been proposed by the Ventura County Resource Conservation District (VCRCD) and meets the IRWMP water quality objective through salts management and removal improvement. Arundo (*Arundo donax*) and tamarisk (*Tamarix spp.*) are non-native invasive plant species that pose significant threats to riparian habitats. Under the Calleguas Creek Watershed Arundo/Tamarisk Programmatic Environmental Impact Report (EIR)/ Environmental Assessment (EA), Permits & Pilot Removal Project, VCRCD will prepare a programmatic EIR/EA, long-term implementation plan and programmatic permits for Arundo and Tamarisk removal, as well as implement a pilot Arundo and Tamarisk removal project within the Watershed.

Arundo is a giant reed native to the Indian subcontinent and introduced by Spanish settlers to the western United States. Although historically useful for fencing, roofing, and fiber production, the benefits of arundo do not outweigh its current negative impacts on local watersheds. Arundo has the capability to spread rapidly, forming large contiguous root masses covering several acres, effectively crowding out native riparian vegetation. This results in lower biodiversity of plant life, eliminating crucial habitat for birds, fish, and other wildlife that use riparian waterways.

Tamarisk is native to south Eurasia and was introduced at the turn of the century for cultivation. It is an aggressive, woody invasive plant species that is relatively long-lived and can tolerate a wide range of environmental conditions once established. It can replace or displace native woody species, such as cottonwood, willow, and mesquite, which occupy similar habitats, especially when timing and amount of peak water discharge, salinity, temperature, and substrate texture have been altered by human activities. Stands of tamarisk generally have lower wildlife values compared to stands of native vegetation and have allelopathic effects by causing the surface soil to become highly saline, thus impeding future colonization by many native plant species.

Removal of this invasive species will increase available groundwater for riparian plants, improve riparian habitat, decrease flooding potential, reduce salinization of soils, and decrease fire hazard.

C-11 - Simi Valley Tapo Canyon Water Treatment Plant (TCWTP)

Project Description: The TCWTP will provide up to 1 mgd of potable water supply by using nano filtration to treat underutilized brackish groundwater. Currently, Ventura County Water Works District 8 (VCWWD 8) delivers over 23,500 AFY to almost 24,000 service connections. According to recent water production estimates (1999-2004), more than 96 percent of water consumed in the VCWWD8 service area is imported water. Imported water comes from the State Water Project and is supplied to VCWWD8 by the Metropolitan Water District of Southern California via Calleguas Municipal Water District.

SANTA CLARA RIVER WATERSHED PROJECTS

SC-1 - El Rio Forebay Groundwater Contaminant Elimination Project

Project Description: The El Rio Project will replace the existing septic tanks that have been identified as a source of contaminant to the Oxnard Forebay aquifer, with a conventional gravity sewer system connected to the City of Oxnard for treatment and disposal. The project includes construction of the sewer mains and laterals to the residential property lines for connection to the collection system. This project, once constructed, will transport effluent from more than 1600 septic systems in the community of El Rio to the Oxnard Wastewater Treatment Plant.

The Unincorporated El Rio community is bounded on the North by Rio Mesa High School, Strickland Tract along Central Avenue, and the Vineyard Avenue Industrial Area, on the East by Rose Avenue, on the South by Ventura Boulevard and State Route 101, and Vineyard Avenue (State Route 232) on the West. The Los Angeles Regional Water Quality Control Board (LARWQCB) mandated phasing out septic tanks in the El Rio community by January 1, 2008 (Resolution 99-13 passed on August 12, 1999, and Title 23, Division 4, Chapter 1, Article 4, Section 3934 of the California Code of Regulations). Failure to meet this prohibition may result in the residents of the El Rio community having to pay fines of up to $10,000 per day.

Disadvantaged Community Status. It should be noted that El Rio is a disadvantaged community. The County conducted a survey, using State Guidelines, of the community's Median Household Income (MHI). MHI was found to be $24,000, well below the cutoff MHI of $37,994, which is 80 percent of the State MHI.

SC-2 - Oxnard Forebay Groundwater Contaminant Elimination Project

Project Description: This project will fund the abandonment of septic systems in the Oxnard Forebay area and the connection of those residences to the public sewer treatment system.

The aquifers that currently receive the septic system effluent affect not only drinking water sources for the City of Oxnard and others, but the resurfacing of the flows potentially affects surface waters, such as the Ormond Wetlands and/or Ormond Beach. LARWQCB Resolution No. 99-13 prohibits additional septic systems in the Oxnard Forebay, and requires the removal of existing systems by 2008. The septic systems proposed for removal are located in the Oxnard Forebay.

SC-3 - Fillmore Integrated Water Recycling and Wetlands Project

Project Description: This project is an integrated project to improve drinking water quality, reduce salt contamination from water softeners, improve wastewater treatment and, provide

for distribution of recycled water. The project will construct a domestic water softening plant, a state-of-the-art wastewater treatment plant, and a recycled water distribution system; and initiate a ban on new or replacement home brine discharging water softeners.

VENTURA RIVER WATERSHED PROJECTS

V-1 - Ventura River Watershed Protection Plan

Project Description: The Ventura River Watershed Protection and Supply Plan is a comprehensive plan aimed at integrating basin-wide issues such as water supply reliability, groundwater recharge, habitat restoration, water quality, and flood management. More than 25 local stakeholders have identified the development of this watershed plan as a top priority. This stakeholder group includes wholesale water providers, retail water suppliers, environmental organizations, groundwater management agencies, Cities, the County of Ventura, special districts, unincorporated communities, a homeowner's association, and community members.

V-2 - San Antonio Spreading Grounds Rehabilitation

Project Description: The project will rehabilitate abandoned diversion works and spreading basins adjacent to San Antonio Creek to increase groundwater recharge in the Ojai Valley Groundwater Basin. The project will also improve fish passage past the point of the current damaged diversion structure and low-flow crossings. A depth-discrete monitoring well, which will be constructed near the spreading grounds, will permit monitoring of the effectiveness of the spreading grounds.

The abandoned diversion works and spreading grounds are located east of the City of Ojai in the bed and banks of San Antonio Creek, just downstream of the Hermitage Road low-flow crossing. The spreading grounds are located on a 10-acre parcel owned by the Ventura County Watershed Protection District (VCWPD). These spreading grounds were destroyed when they were filled with sediment in conjunction with the VCWPD's construction of a debris basin on San Antonio Creek. The diversion works are located on land that was once part of the Ladera Family Trust, but is currently owned by Gene Valiulis. A portion of the property owned by Ron Asquith is also traversed by the diversion channel.

V-6 - Senior Canyon Water Company Automation Upgrades Project

Project Description: The project will convert Senior Canyon Water Company's water supply, distribution, and treatment system from a manual to an automated one. Upgrades will include the installation of instrumentation, controls and programming equipment. The automatic upgrades will increase the reliability of Senior Canyon Water Company's operations.

This project will allow Senior Canyon to better manage and develop its own groundwater supplies due to improved treatment and measurement capability. It will create greater efficient conjunctive use of local ground and surface water supplies. Senior Canyon presently relies heavily on Casitas Municipal Water District's (Casitas) surface water supply. Casitas no longer approves new water allocation requests unless new water supplies are identified. In recent years Casitas has increased the amount of water it is providing to Senior Canyon due to the low reliability of that system. Senior Canyon Water Company's improved water reliability and water savings will help meet its own water supply requirements more efficiently and make it less reliant on Casitas' surface water.

The proposed project will consist of installing instrumentation and controls to allow for water measurement capability using flow meters and remote automation by installing a command and control system with Senior Canyon's operations. This project would improve Senior Canyon's water conveyance efficiency. It would increase the reliability of Senior Canyon's water supply for its own customers making it less reliant on Casitas' water.

The project upgrades will include:

a. Modifying Senior Canyon's existing filters from manual operations to automatic.

b. Building a new chloramination facility with automatic operation and proper redundancy and power backup and storage facilities to meet the requirements of the surface water treatment rule and the disinfection byproducts rule.

c. Installation of automatic monitoring and reporting equipment, which will transmit the operation and monitoring back to a control office located at the Casitas Water Treatment Plant and Casitas office. Casitas will be immediately notified of any problems and will then identify them so they can be automatically responded to by a certified operator as appropriate.

d. Add backup electrical supply to ensure facilities run during power outages; and provide a system of radios or landlines to get the control and monitoring information back to the control center.

B. Step 1 Implementation Grant Applications

The following list of projects were included in the Step 1 Implementation Grant applications (July 2005) for the Ventura Countywide Integrated Regional Water Management Plan Group and the Calleguas Creek Steering Committee, but were not included in the Step 2 application due to the funding limitation placed on the Step 2 application for each Region (a maximum of $25 million). Those projects in the Calleguas Creek Watershed were formally approved by the Calleguas Creek Steering Committee and adopted as part of the Calleguas Creek IRWM plan by the participating jurisdictions.

The projects described below, along with other projects previously proposed, are subject to additional review by each Watershed Committee and the Watersheds Coalition of Ventura County for consideration of future IRWM grant funding. A determination of future funding sources for those projects will also be made.

CALLEGUAS CREEK WATERSHED PROJECTS

C-2 - Renewable Water Resource Management Program for the Southern Reaches of Calleguas Creek Watershed (RWRMP).

Project Description: The RWRMP for the Southern Reaches of the Watershed is a joint effort between Camrosa Water District, Camarillo Sanitary District, and the City of Thousand Oaks. It would involve an integrated set of facilities to reduce reliance on imported water supplies while improving water quality through the managed transport of salts out of the Watershed; thus, it meets all three IRWMP objectives. The RWRMP seeks to manage salts through a systems approach. To the extent possible, the RWRMP will address the salt imbalance by reducing salts introduced into the Watershed, removing salts currently disposed into the creek system, distributing water to move salts down gradient and out of the Watershed, introducing high quality water into the creek system to increase its capacity to carry salts that cannot otherwise be intercepted, and finally capturing and disposing of concentrated salts that would not otherwise move out of the Watershed.

The Watershed's hydrology is complex and dynamic. In order to evaluate the RWRMP's ongoing effect on sub-watershed salt balances, a monitoring and adaptive management element is included. The initial phase includes the establishment of automated monitoring points on the creek to measure flow and salt concentrations. By collecting data on an ongoing basis, the agencies could track and evaluate how best to move additional salts out of the Watershed. Collected data will be analyzed regularly for comparison to water quality objectives and project-specific improvement criteria. Data, analysis results and conclusions will be shared with stakeholders through the Calleguas Creek Watershed planning process. A continuous inventory of the inputs and outputs of salts to each sub-watershed will be maintained to document the relative success in transporting salts out of the Watershed. The RWRMP is designed to be implemented incrementally so that water quality impacts and future actions can be evaluated at each phase.

C-4 - South Las Posas Desalter

Project Description: The South Las Posas Basin Regional Desalter is proposed by the Calleguas Municipal Water District and meets three critical IRWMP objectives. The South Las Posas Basin Regional Desalter would be a 5 mgd brackish groundwater treatment facility. The desalter would be located in Moorpark. Reverse Osmosis (RO) treatment technology would be used to produce potable quality water. Brine waste, containing concentrated salts from the RO process, will be discharged to the Brine Line and exported out of the Watershed.

This area currently receives a combination of local groundwater and imported water to its customers. The South Las Posas Groundwater Basin has been virtually full since 1983. Despite the availability of water and the presence of potential users, the relatively high TDS and chloride concentrations in the groundwater require that the water be treated before it can be used for potable purposes. The construction of desalters, like the South Las Posas Regional Desalter, will allow brackish water that is currently unusable to be used beneficially, increasing water supply reliability, and removing salts through brine disposal outside of the Watershed.

C-5 - Somis Desalter

Project Description: The Somis Desalter is proposed by the Calleguas Municipal Water District and meets three important IRWMP objectives. The Somis Desalter will be a brackish groundwater treatment facility, similar to the South Las Posas Basin Regional Desalter (Project 4). The Somis Desalter will have a capacity of 2 mgd and be located west of the South Las Posas Basin Regional

Desalter in Somis. The Somis Desalter is expected to be constructed after the South Las Posas Basin Regional Desalter is completed. RO treatment technology will be used to produce potable quality water. Brine waste, containing concentrated salts from the RO process, will be discharged to the Brine Line and exported out of the Watershed.

This area currently receives a combination of local groundwater and imported water. The South Las Posas Groundwater Basin has been virtually full since 1983. Despite the availability of water and the presence of potential users, the relatively high TDS and chloride concentrations in the groundwater require that the water be treated before it can be used for potable purposes. The construction of desalters, like the Somis Desalter, will allow brackish water that is currently unusable to be used beneficially, increasing water supply reliability and removing salts through brine disposal outside of the Watershed.

C-6 - West Simi Desalter

Project Description: The West Simi Desalter is proposed by the City of Simi Valley (City) and meets all three critical IRWMP objectives. The City operates five dewatering wells in the western portion of the City to lower the groundwater table and relieve nuisance water to houses and other occupied structures. Approximately 3 mgd are pumped and discharged to the Arroyo Simi. With construction of the West Simi Desalter, the City will capture this brackish water for treatment (desalting) and recover the water for beneficial use as potable water.

The West Simi Desalter is a brackish groundwater treatment facility with a capacity of 3 mgd. Groundwater pumped from the five dewatering wells will be conveyed to a central location, where the desalter would use RO treatment technology to produce potable quality water. Brine waste, containing concentrated salts from the RO process, will be discharged to the Brine Line and exported out of the Watershed.

The City currently delivers imported water, provided by Calleguas, to its customers. Due to its saline quality, the Simi Valley Groundwater Basin is not currently used as a source of potable water by the City. Despite the availability of water and the presence of potential users, the relatively high TDS and chloride concentrations in the groundwater require that the water be treated before it can be used for potable purposes. The construction of desalters, like the West Simi Desalter, will allow brackish water that is currently unusable to be used beneficially, increasing water supply reliability, and removing salts through brine disposal outside of the Watershed.

C-8 - Simi Valley Regional Recycled Water System

Project Description: The Simi Valley Regional Recycled Water System is proposed by VCWWD8 and meets two of the IRWMP objectives of reducing dependence on imported water and improving water supply reliability. The Simi Valley Regional Recycled Water System involves the construction of new distribution facilities consisting of recycled water pipelines and two new reservoirs that will serve major users within the VCWWD8's service area. The project will connect with existing recycled water infrastructure, including the Simi Valley Water Quality Control Plant (SVWQCP), a pump station, and a pipeline from the SVWQCP to the Simi Valley Landfill.

Approximately 7500 feet of 12-inch and 10,700 feet of 24-inch recycled water pipelines will be constructed to expand the existing distribution system to new recycled water users and a new 2 mg recycled water reservoir. The 12-inch pipeline would connect to the proposed recycled water reservoir at the SVWQCP and proceed westward to properties planned for commercial and mixed uses and a future connection with VCWWD1. The remainder of the 24-inch pipeline will proceed eastward to supply a second 2 mg reservoir and the Simi Valley Town Center Mall, where the recycled water will be used for landscape irrigation. Existing facilities with potential recycled water

demands, such as Pre-Con Products and California West Ready Mix, would also be served. Another major potential recycled water use is the North Park Nature Preserve and Village development, which has a projected recycled water demand of 1780 AFY. The proposed facilities will deliver tertiary effluent produced by the SVWQCP. It is estimated that almost 2000 AFY of recycled water could be delivered upon completion of the project for both existing and planned future users.

C-9 - Conejo Creek North Fork – Wildwood Park Water Management Enhancement Project

Project Description: The Conejo Creek North Fork - Wildwood Park Water Management Enhancement Project (Wildwood Project) has been proposed by the Mountains Recreation and Conservation Authority (MRCA) and meets two IRWMP objectives to improve water supply reliability and manage and remove salts. The Wildwood Project will improve approximately 2900 feet of the north fork of Conejo Creek. The objectives of the project are to enhance and create wetland habitat, restore a portion of the Conejo Creek Watershed, provide for stormwater capture, increase groundwater recharge and infiltration, and improve water quality from stormwater runoff of the surrounding housing area.

The project site drains approximately 263 acres of residential development. The project entails daylighting and dechannelizing the pipe and channel on the Ventura County Watershed Protection District (VCWPD) property that runs between Avenida de los Arboles and Wildwood Avenue. A natural channel will be created on the northwestern portion of Wildwood Park, owned by Conejo Recreation and Park District (CRPD), which will divert the water directly into the creek on the south side of Avenida de los Arboles in Wildwood Park.

On these two properties, as well as on the Conejo Open Space Conservation Agency property adjacent to the VCWPD property, native vegetation will be planted to create riparian and wetland habitat and an upland habitat buffer. The wetlands and restored channel will provide increased stormwater infiltration and improved water quality entering Wildwood Park. Restoration of disturbed upland habitat will offer more onsite water retention. Small wetlands, in the form of meanders, will be created within the parameters prescribed by a fluvial geomorphologist. The MRCA has a full-time, staff fluvial geomorphologist, who will oversee the project.

Improvements on the properties include the removal of hard bank sides on the west side of the channel on VCWPD land and on the east side of the creek on CRPD land, the removal of drain pipes, followed by regrading and the installation of riprap, planting native vegetation, and fencing, as necessary.

This project seeks to create approximately five acres of prime riparian woodland habitat. The riparian habitat restoration objectives are to increase the area and diversity of riparian and riparian-adjacent habitats on the site in order to maximize the number and diversity of native bird species breeding or otherwise occupying the site. This consists of creating a willow-cottonwood riparian woodland, including native understory plant species, mature trees, open water, shorelines, and adjacent shrub elements, providing varied bird habitat.

Some bird species, such as common yellowthroat, song sparrow, spotted towhee, California towhee, Bewick's wren, and black-headed grosbeak, are expected to colonize, and possibly breed, in the early stages of riparian restoration projects such as this one. As the riparian woodland grows, several woodpecker and hummingbird species could move in. Several species of hawks (such as Cooper's, red-tailed, and red-shouldered) could also colonize the site as the woodland matures even more, as the different hawk species rely on various structural aspects of trees.

An adaptive management plan has been integrated into the project to monitor and adapt post-project operations. Water quality testing will be completed every year at the upstream and downstream ends of the project. Data from the testing would be made available on the MRCA website and to all other government entities and the public.

SANTA CLARA RIVER WATERSHED PROJECTS

SC-4 - Piru Wastewater Treatment Plant Upgrade/Contaminant Elimination

Project Description: The 30 year-old Piru Wastewater Treatment Plant (PWTP) needs to be upgraded to meet the Regional Water Quality Control Board discharge requirements. On January 29, 2004, the Los Angeles Regional Water Quality Control Board (LARWQCB) issued Order No. R4-2004-0032 directing Waterworks District No 16 to upgrade the plant to meet the standards set forth in the Order by March 2007. The upgraded/expanded PWTP will consist of an influent pump station, flow meter, flow equalization basin/pump station, preliminary screening, membrane bioreactor system, utility water system, percolation ponds for effluent disposal, aerobic digester, vacuum-assisted sludge drying beds, and emergency power system. Effluent will be disposed from the PWTP through percolation, or in the future effluent may be recycled for beneficial uses in periods of drought**.**

SC-5 - Conjunctive Use Irrigation Well

Project Description: Construction of an irrigation well to implement conjunctive use of water for agricultural purposes. Currently, farmers annually construct an earthen push-up dam to capture surface flows for irrigation purposes. This is not an optimal approach since construction of the dam is frequently delayed due to Department of Fish and Game and NOAA concerns. In addition, these concerns also may require that diversion be ceased before the end of the irrigation season, thus negatively impacting agriculture.

This project will aid critical habitats and species in two ways: by eliminating the need for the annual construction of the earthen dam, with accompanying disruption of the local habitat, and by eliminating diversion of surface flows, thus allowing the water to remain within the natural habitat. The project will also enhance water supply reliability by ensuring farmers a stable, reliable source of water for irrigation of crops.

SC-6 - West Ventura County Water Supply Reliability

Project Description: Connect the water systems for the Cities of Ventura and Oxnard by constructing approximately 22,000 feet of 20-inch pipeline between the City of Ventura's Saticoy Conditioning Facility at Wells Road and Telephone Road across the highway 118 bridge over the Santa Clara River at Saticoy to the City of Oxnard Del Norte Blending Station #4 on Rose Avenue south of Central Avenue. Provide appropriate metering and pumping facilities.

SC-7 - Santa Clara Habitat Restoration, Water Quality Improvement & Floodplain Expansion

Project Description: This project will focus on habitat enhancement and restoration that will also result in flood hazard and non-point pollution reduction and groundwater recharge along the Santa Clara River in Ventura County. Habitat enhancement and restoration is critical on this river as it is the last large river that still remains in a generally natural state on the south coast of California. Some parts of the river are nearly one-half mile wide.

The South Coast Region is the most biologically diverse Region in all of North America yet its natural areas have been and continue to be replaced by human-related uses. It is estimated that 95 percent of the wetlands in the Region have already been lost. Therefore, the many native species that need wetland habitat to survive are relegated to a tiny fraction of the range they once had. Wetland destruction continues today. There is an opportunity in the Santa Clara River Watershed to protect an intact riparian system that is home to as many as 22 State and/or Federally listed species including the southern California steelhead, unarmored stickleback, red-legged frog, arroyo toad, least bells vireo, and southwestern willow flycatcher. One researcher called the Santa Clara River the mother lode of the few remaining southern California steelhead trout.

By acquiring lands that are prone to flooding or could be encouraged to flood during high-flow events, the threat of downstream flooding can be greatly reduced. Reducing downstream flood hazard by increasing the floodplain in selected areas will greatly reduce or eliminate the need to construct expensive flood control structures that are detrimental to riparian systems. The expanded floodplain will be converted or restored to riparian habitat where appropriate.

Additionally, some of these properties and/or other acquired properties will include habitat restoration that will be designed to collect local agricultural runoff in specially designed bio-treatment ponds. These ponds will contain appropriate native riparian plants that will naturally filter and remove sediment and contaminants before the water enters the river or groundwater. This portion of the project will be conducted in conjunction with the new NPS pollution program being implemented by the LARWQCB. The goal is to attain TMDL standards compliance for a group or groups of farms in the Watershed.

Increasing the size of the functioning floodplain and creation of the bio-treatment ponds will have the added benefit of increased groundwater recharge. As flooding occurs in the areas of the expanded floodplain habitat, some of the water will be detained long enough to percolate into the ground eventually reaching subsurface aquifers. Similarly, water retained and treated in the bio-treatment ponds will also percolate, thereby increasing groundwater recharge.

In addition to the many benefits this project provides, it is also highly cost-effective. Hard bank flood protection can cost $3000 per linear foot. Acquisition of the floodplain can prevent flooding without the need for these expensive structures. An example of the greater cost efficiency can be found in an existing project on land recently purchased by The Nature Conservancy. The property contains 110 acres of which 30 are in agriculture with the rest in the river channel. The agriculture portion of the property is protected by a large rock levee nearly 3000 feet long. This levee would cost roughly $9 million to construct today but protects land worth only $800,000. Using $3000/linear foot to construct a levee is equivalent to purchasing a 1.24 mile wide buffer along the river - assuming farmland costs $20,000 per acre.

None of the project benefits can be accomplished without acquiring the lands that will be restored to prime habitat, increased floodplain, bio-treatment ponds, and water recharge areas.

SC-8 - Watercourse Setback Ordinance

Project Description: The Planning Division of the County of Ventura will complete and take through the Board of Supervisors a Watercourse Setback Ordinance that will limit and define the types of land uses that would be allowed adjacent to watercourses. Specific issues that will be addressed include:

a. Area(s) covered by ordinance. It is probable that the ordinance will be based on 100- and 500-year floodplain areas. Most regulations would apply to 100-year floodplains; some might be applicable to 500-year floodplains. Applicability to other areas, such as wetlands, would be examined.
b. Types and intensity of land uses allowed.

VENTURA RIVER WATERSHED PROJECTS

V-3 - Ventura River Sewer Trunk Relocation

Project Description:

The project consists of the installation of a new 8-inch sewer line to replace an existing sewer line in the Ventura River. The new sewer line will be located adjacent to the river within an existing residential community served by the sewer line. The new sewer line will be 3180 feet long and will be located in existing private roadways.

The line was constructed in 1963 as apart of the Meiners Oaks Sewer System. At that time construction along the edge of the river bottom was less costly than through the residential community adjacent to the river. Today, the line is threatened by the meandering of the Ventura River. The river is moving towards the eastern bank and will be subject to erosion and damage. The resulting sewage spill will affect the Ventura River, the coast downstream of the river, and a number of water companies.

Most of this existing pipeline is in an easement on property owned by the Ojai Valley Land Conservancy. This area is also targeted as a disposal area for material taken from the Matilija Dam removal project. Removal of the pipeline and easement from the Conservancy's land will allow the Conservancy to restore it to a natural habitat without having to accommodate the Ojai Valley Sanitary District's need for maintenance access with heavy equipment.

V-4 - Ventura River/Meiners Oaks Sewer Trunk Relocation

Project Description:

The project consists of the removal of the existing 18-inch sewer line crossing the Ventura River which has been replaced by a new inverted siphon. The new siphon is working satisfactorily, and the old line can be abandoned. A portion of the line is in the low-flow channel. The river is also a meandering river and the low-flow channel moves. The line was constructed in 1963 as a part of the Meiners Oaks Sewer System. At that time Highway 150 and all utility lines crossed the river bottom. Today, the roadway and all utilities have been removed from the river bottom.

The sewer line is several feet below the elevation of the riverbed of 1963. The low-flow channel has moved significantly to the east and dropped over the past 40 years. The pipeline is now exposed on the surface of the low-flow channel and will become a dam in the river as the riverbed drops further. The riverbed is expected to drop another 2 feet over the next 50 years if the Matilija Dam is not removed.

A dam in the Ventura River is an impediment to the passage of the steelhead trout, an endangered species. This project will improve wildlife habitat by removing this potential dam. This existing pipeline is in an easement on property owned by the County of Ventura.

V-5 - Ojai Meadows Preserve Habitat Restoration and Flood Control Plan

Project Description: A segment of State Highway 33 adjacent to Nordhoff High School (Ojai Unified School District - OUSD) seasonally floods, thereby restricting (or cutting off completely) traffic flow to local neighborhoods and the high school, which is Ojai Valley's emergency evacuation center. Adjoining this area is the Ojai Meadows Preserve. The owner of the preserve, the Ojai Valley Land Conservancy (OVLC), is in the process of restoring the Preserve to wetlands. This project will revise drainage patterns in the project area to avoid flooding of the highway and high school and improve wetland hydrology for restored wetlands on the Ojai Meadows Preserve. Some groundwater recharge is anticipated as a result of allowing the runoff to collect and pool in the wetland areas. The wetlands on the Preserve will provide additional filtration before excess water is ultimately discharged into the Ventura River approximately 0.7 mile west of the Ojai Meadows Preserve.

Although OVLC has completed much of the conceptual master planning for the Ojai Meadows Preserve, OVLC seeks funds not only for necessary additional plan modifications (engineering/grading design) but also for implementation of the actual restoration work. OVLC also seeks funds to assist in the cost of relocating or realigning portions of the existing sewer lines on the property, as the Ojai Valley Sanitary District will not cover any of these costs.

The Ojai Meadows Preserve property will need to be graded and re-contoured to the specifications developed per the Master Plan (and/or any necessary recent modifications). This is a significant task if the wetland restoration effort and the streambank/channel modifications are to occur properly. This task will be closely integrated with the OUSD's grading plan which brings water to the OVLC's property boundary. Also, this re-contouring must be closely coordinated with hydrologists and engineers with Caltrans in order for the flooding at Highway 33 to be properly addressed and not conflict with the wetland restoration and riparian corridor development efforts. The re-grading work will be subcontracted to a licensed contractor through a bid process.

To accommodate increased storm runoff capacity, OVLC plans to widen the existing stream channels on the Preserve (while also converting them to riparian corridors) and to channel the attenuated storm flow into catch basins (vernal pools/retention ponds/wetland habitat). This work will be contracted through a bidding process to firms specializing in this type of construction.

The project also embraces wildlife, educational and recreational benefits. The project has the support of many local agencies and organizations including the City of Ojai, the Ojai Chamber of Commerce, Caltrans, the Ventura Audubon Society, Ventura County Fire Department, the Red Cross, former State Senator Jack O'Connell, former Assemblywoman Hannah-Beth Jackson, and Supervisor Steve Bennett.

The plan will allow for holding basins, filters for impurities, catch basins, open "filtering" swales, vernal pools, trail ways, and long-term maintenance. The plan will also coordinate activities between the various agencies of the overall project such as: Caltrans, State Department of Fish and Game, Ventura County Planning Department, Ventura River Authority, Ventura Water Quality Board, Ventura County Watershed Protection District, Ojai Valley Sanitary District, Ventura County Fire Department, U.S. Army Corps of Engineers, Regional Water Quality Control Board and the City of Ojai. The CEQA process will be followed for this project as prescribed by the State of California and any negative impacts will

be mitigated. Based on experience with local permitting agencies, and specifically the nature of this project, the OVLC will be required to obtain various permits from the aforementioned agencies.

V-7 - Lower Ventura River Habitat Restoration and Enhancement

Project Description: This project will perform habitat restoration and enhancement along the lower five miles of the Ventura River up to and including the estuary, and in order to make this possible, acquire land and conservation easements in the 100-year floodplain along this reach of the river. Funding from this grant would be applied towards acquisition, restoration planning, and wetland restoration upon a piece of property that will be identified by a comprehensive prioritization process.

The restoration of historic wetlands and riparian vegetation will directly benefit sensitive species in the area, particularly the endangered southern California steelhead trout. Additional benefits include reduction of downstream flooding through wetland floodwater retention, elimination of costs for property protection on floodplain land that would otherwise be developed, water quality improvement through wetland restoration, and water conservation through prevention of consumptive activities on the land. A future phase of this project – not a part of this grant request - will involve the development of a passive recreation river parkway with interpretive facilities once a contiguous corridor along the river has been protected.

V-8 - Steelhead Enhancement Project

Project Description: The Steelhead Enhancement Project (SEP) will reduce threats to steelhead; seek to secure a long-term water supply; implement and verify State and Federal regulatory requirements for the steelhead and the Robles Fish Passage Facility; enhance communication and coordination between the Casitas Municipal Water District, resource agencies, and other stakeholders in the Ventura River Basin; and consolidate steelhead enhancement activities in the Ventura River Basin. Specifically, SEP is designed to enhance southern California steelhead in the basin by:

a. Working cooperatively and in conjunction with Federal, State, and local agencies to preserve, enhance and restore southern steelhead and their habitats.

b. Promoting the recovery of southern California steelhead and other listed species, preventing the need for further listing, and generally improving habitat conditions for fish and wildlife.

c. Implementing an adaptive management approach wherein biological information and data will be gathered, reviewed, and incorporated into enhancement activities.

d. Determine whether or not enhancement of southern California steelhead in the Ventura Basin is being achieved.

e. Assist with activities that enhance other species in the basin. These activities may include:

1) Reviewing the existing physical and biological information.
2) Reviewing status information.
3) Reviewing conservation recommendations.
4) Recommend changes in the collection, analysis, and interpretation of relevant information.

C. Proposed Future Projects

Process For Developing Additional Project Ideas for Future Implementation

The WCVC has begun the process of recommending future projects and project concepts to help achieve the objectives of this IRWMP. Appendix G contains a list of future specific projects and conceptual projects, some of which were developed several years ago and others more recently, that need to be further analyzed and coordinated with the sponsoring agencies. These projects will be tied to specific water management strategies, and will address long-term needs and objectives in each of the Watersheds.

Early in 2007 the WCVC will begin the process of reviewing and prioritizing the proposed projects and project concepts. They will be reviewed at the watershed level, through the Watershed Committees, for how well they meet watershed objectives, water management strategies and other identified priorities. These projects will also be assessed for how well they are integrated within and across watersheds to provide multiple benefits. A database has been developed for all projects to display and manage this information.

2007 IRWM Plan Addendum

By June of 2007, the WCVC will release the first update to the IRWMP, in the form of an addendum, which will include the projects selected for future implementation and the potential funding sources. The addendum will include all projects which have been assessed and prioritized, by the watershed committees and the WCVC.

The IRWM Plan is a dynamic planning document. There will be an ongoing process for keeping this proposed project list up-to-date, through regular bi-annual updates with additional revision as needed before major grant applications, as conditions change, funding is identified, projects are implemented and objectives revised.

6.3 Impacts and Benefits of Plan Implementation

There are many positive impacts and benefits associated with the integration of strategies to manage water and environmental resources within watersheds. The primary benefit of plan development and implementation is the creation of an institutional structure for Integrated Regional Water Management Planning—the Watersheds Coalition of Ventura County (WCVC). The WCVC has already made significant progress by establishing a forum in the Region for water management planning, drafting regional objectives, assembling a comprehensive list of potential implementation projects and prioritizing it, and overseeing the planning and implementation grant application process.

Establishment of the WCVC, and the two groups that preceded it (Ventura Countywide Integrated Regional Water Management Plan Group and Calleguas Creek Steering Committee) has already resulted in substantial benefits, by bringing together the numerous disparate water interests within the Region into a single, unified group with a common purpose and direction. WCVC members have cooperated to prepare many of the parts of the Plan, identifying regional issues, priorities, and specific projects designed to address these problems. Implementation of projects and programs designed to improve local water supplies and management will be more successful as a result of this high level of cooperation among the agencies that must work together to implement them.

CEQA Review: Development and Implementation of the IRWM Plan will provide a positive benefit to residents, businesses, irrigators and the environment through the resulting improvement to one of the most important resources in the Region – water. As such, it has been determined that the Plan is exempt from CEQA. The following provisions under CEQA apply: Statutory and categorical exemptions.

Statutory Exemption (15262 for Feasibility and Planning Studies)
Categorical Exemptions (15306-Information Collection, 15307-Actions by Regulatory Agencies for Protection of Natural Resources, and 15308-Actions by Regulatory Agencies for Protection of the Environment.)

The projects and programs contained in this IRWMP have been identified for possible future funding. It is important to note that these specific implementation projects or programs will be subject to separate CEQA review once funding is secured.

6.4 Beneficiaries and Financing Options for Plan Implementation

The potential beneficiaries for the WCVC Integrated Regional Water Management Plan and related programs and projects are all water users and residents, water agencies, local, State and Federal agencies, businesses, the environment, agriculture and others within the jurisdictions served by these projects . These beneficiaries are represented by members of the WCVC. Initial funding of $96,000 for the VCIRWMP/WCVC effort was provided by Group members under a Memorandum of Understanding. The VCIRWMP Group was successful in applying for a Planning Grant under Proposition 50, Chapter 8 to fund the remaining costs of developing the final IRWM Plan. In-kind contributions were provided by Calleguas Municipal Water District on behalf of the Calleguas Creek Steering Committee to advance the plan and implementation proposal.

As previously mentioned, the WCVC submitted an application for a Step 2 Implementation Grant under Proposition 50, Chapter 8. Additional funds for operation and maintenance of implemented projects and programs included in this grant application, will be provided by local agencies through matching funds. The sources of these funds include: water and sanitary district general funds, system replacement reserve funds, and enterprise funds; general funds from local Cities, organizations, County departments; private organizations fundraising and member dues, etc.
In early 2007 the WCVC will initiate a process to further refine the list of proposed projects and identify financing options for each project.

6.5 Consistency with and Implementation of Statewide Priorities

The following table (Table 6-3) contains an assessment of which Statewide Priorities are met by the individual proposed projects submitted in the WCVC Step 2 Grant Application; further detail regarding consistency with Statewide Priorities can be found in Attachment 13 of the Step 2 Grant Application. Please see Table 6-4 for an assessment of the consistency of the proposed projects in the Step 2 application with the IRWMP objectives and the water management strategies.

Table 6-3
Step 2 Implementation Grant Projects
Consistency with Statewide Objectives

Project No.	Project	1. Reduce conflict between water users or resolve water rights disputes	2. Implementation of TMDL	3. Implementation of RWQCB WMI	4. Implementation of SWRCB's NPS Pollution Plan	5. Assist in meeting Delta WQ Objectives	6. Implementation of recommended floodplain management, desalination, and recycling task forces	7. Address environmental justice concerns	8. Assist in achieving the goals of CALFED Bay-Delta Program
C-1	Calleguas Regional Salinity Management Project (Brine Line), Hueneme Outfall Rehabilitation	✓	✓	✓	✓	✓	✓		✓
C-3	Camarillo Groundwater Treatment Facility	✓	✓	✓	✓	✓	✓		✓
C-7	VCWWD1 Expansion of Reclaimed Water Distribution System	✓	✓	✓	✓	✓	✓		✓
C-10	Calleguas Creek Watershed Arundo/Tamarisk Programmatic EIR, EA, Permits & Pilot Removal Project	✓	✓	✓	✓		✓		
C-11	Simi Valley Tapo Canyon Groundwater Treatment Plant	✓	✓	✓	✓	✓	✓		✓
SC-1	El Rio Contamination Elimination Project	✓		✓	✓			✓	
SC-2	Oxnard Forebay Contamination Elimination Project	✓		✓	✓	✓			✓
SC-3	Fillmore Integrated Recycled Water and Wetlands Project	✓	✓	✓		✓	✓		✓
V-1	Ventura River Watershed Protection Project	✓	✓	✓	✓	✓	✓	✓	✓
V-2	San Antonio Spreading Grounds Rehabilitation	✓		✓		✓			✓
V-6	Senior Canyon Automation Upgrades Project	✓				✓			✓
	Summary of Overall Program	✓	✓	✓	✓	✓	✓	✓	✓

Table 6-4: Relationship of Proposed Projects to Water Management Strategies and IRWMP Objectives

Project No.	Project Title	Ecosystem Restoration*	Environmental and habitat protection and improvement*	Water Supply Reliability*	Flood management*	Groundwater management*	Recreation and public access*	Storm water capture and management*	Water conservation*	Water quality protection and improvement*	Water recycling*	Wetlands enhancement and creation*	Conjunctive use	Desalination	Imported water	Land use planning	NPS pollution control	Surface storage	Watershed planning	Water and wastewater treatment	Water transfers	Reducing Dependence on Imported Water and Protect, Conserve and Augment Water Supplies	Protect and Improve Water Quality	Protect People, Property and the Environment from Adverse Flooding Impacts	Protect and Restore Habitat and Ecosystems in Watersheds	Provide Water-Related Recreational, Public Access and Educational Opportunities
		IRWMP Program Guidelines Water Management Strategies*																				IRWMP Objectives				
C-1	Calleguas Regional Salinity Management Project (Brine Line), Hueneme Outfall Rehabilitation	√	√									√			√					√		√	√		√	
C-3	Camarillo Groundwater Treatment Facility			√		√					√		√	√	√					√		√	√			
C-7	VCWWD1 Expansion of Reclaimed Water Distribution System										√				√							√				
C-10	Calleguas Creek Watershed Arundo/Tamarisk Programmatic EIR, EA, Permits & Pilot Removal Project	√	√		√					√	√					√							√	√	√	
C-11	Simi Valley Tapo Canyon Groundwater Treatment Plant					√				√					√					√		√	√			
SC-1	El Rio Contamination Elimination Project					√				√													√			
SC-2	Oxnard Forebay Contamination Elimination Project	√	√			√				√		√											√		√	
SC-3	Fillmore Integrated Recycled Water and Wetlands Project	√	√								√	√				√				√		√	√		√	
V-1	Ventura River Watershed Protection Project	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√			√			√	√	√	√	√
V-2	San Antonio Spreading Grounds Rehabilitation		√	√		√									√							√			√	
V-6	Senior Canyon Automation Upgrades Project			√		√			√						√					√		√				

* Asterisked items are per CWC 79562.5 and 79564

SECTION 7.0 DATA MANAGEMENT AND ANALYSIS

7.1 Technical Analysis and Plan Performance

Technical Analysis:

As previously mentioned, and further described in the annotated reference list of existing plans and reports (see Appendix F), local agencies and organizations have conducted numerous studies and developed a significant amount of information related to water management. The former Ventura Countywide Integrated Regional Water Management Plan (VCIRWMP) Group and the Watersheds Coalition of Ventura County (WCVC) have devoted a number of meetings to the discussion of existing data, data formats and the need for additional information. The initial steps in preparing this Plan included conducting a detailed review of these data through creation of a new database and identification of gaps and deficiencies. One key deficiency already identified is that there are no completed watershed management plans for the Ventura River and Santa Clara River Watersheds, although efforts are underway to create plans for each of the these watersheds. In addition, studies are needed to define groundwater basin safe yields in both these watersheds.

The WCVC has further identified problems with information collection. Some rivers and reaches are over-studied, with overlapping monitoring efforts, while others are under-studied. Finally, there are problems with the varying formats in which the data is collected making it difficult to assemble into a coherent whole. The new database may assist in the goal of creating standardized data formats that are also compatible with State and Federal data needs.

Completion of various data-gathering projects, primarily addressing safe yields, will be a key component of this ongoing planning effort. Where possible, this newly generated data will be integrated into the Plan documents. It is anticipated that further data deficiencies will be identified. These may be the subject of future funding requests either through Proposition 50 or from other sources.

Plan Performance:

Generally, successes of the Plan will depend on how well the individual plan objectives (see Section 4) are achieved. Achievement of all of these objectives will, in large part, determine the success of local integrated regional water management planning process.

Additionally, success may be attributed to the Plan when individual projects (see Section 6) meet their goals and objectives and help to cumulatively and positively address individual plan objectives.

This IRWM Plan is a dynamic document, part of an ongoing local effort to achieve integration of local water management. The process, through stakeholder participation and plan revisions, will continue for many years and will be an effective mechanism for addressing the water management issues facing this Region and/or specific watersheds within the Region. As a consequence, on an ongoing basis, plan objectives, regional priorities, Statewide priorities, and program preferences contained within Section 4 will be reviewed for relevance and modified as needed to ensure the overall Plan reflects changing needs and continues to be effective. Additionally, the projects

identified for future implementation will be reviewed and evaluated periodically to ensure that current plan objectives will be met and that the proposed projects offer the greatest benefit possible. Periodically, a new set of projects will be developed to address plan objectives and State and Regional priorities.

Watershed-based planning will continue to be enhanced through ongoing efforts. Through the continuing watershed committee meetings, the Plan will be evaluated for ongoing effectiveness and relevance. The Plan is envisioned to serve as an overarching guide and framework for watershed planning, project proposals, and project implementation.

Regular evaluation of the Plan and its components is vital to ensuring that the Plan lives on as an effective water management program for the Region. It is expected that these evaluations occur as substantial new information is generated or at least once per year.

7.2 Data Management

A wide variety of information – data - is necessary to effectively manage water. The kinds of data needed include information regarding water quality, quantity, population demographics, climate and rainfall patterns, treatment plant effluent, habitat locations and needs, water costs, and more. Data is vitally important to agencies trying to maximize operating efficiency and design projects with limited budgets. The types of data available, current relevance and trends, and knowledgeable people that can interpret the data are all important. Equally important is the opportunity for Federal and State agencies to view local data for their own monitoring needs and to better understand local conditions.

Data regarding water quantity and quality are collected and disseminated currently by a number of different agencies including the State Department of Health Services, Department of Water Resources and Regional Water Quality Control Board, the Ventura County Watershed Protection District, Ventura County Environmental Health Division, local groundwater management agencies, and retail water agencies. The format varies, and the data are not always consistent. In essence, a very good base of data has been compiled, but current gaps need to be filled via more research, more observation, and more funding.

Data is, and will continue to be, disseminated to stakeholders, agencies, and the public through e-mail distribution and postings on the Watersheds Coalition of Ventura County's (WCVC) website, at www.watershedscoalition.org. The WCVC has established data protocols with the goal that information be collected and organized in formats and with sufficient detail that is compatible with State and Federal needs.

Prior to the consolidation of the VCIRWMP Group and the CCWMP Steering Committee, both organizations had created "data" committees and dealt separately with data needs and established protocols.

Calleguas Creek Watershed Management Plan (CCWMP): Within the CCWMP process, data management is underway. The following is excerpted from the CCWMP: The effort to date has resulted in the collection of an extensive amount of data, preparation of numerous reports, and the development of several Geographic Information System (GIS) layers. The CCWMP has already established a website (http://www.calleguascreek.org) where the public can obtain copies of the various reports (including the TMDL studies), meeting times and minutes, GIS information, and description of the Watershed characteristics.

Action No. 2 of the CCWMP included the development of a data repository. The purpose of the action is to develop a warehouse of CCWMP information, data, maps, and planning recommendations so that public and private entities and interested stakeholders would have the opportunity to work from a common base of information. This resource would help the development of public and private project design and implementation of compatible and coordinated actions in land use, facility development, and conservation actions.

The Public Outreach/Education and Land Use subcommittees will need to work together to identify a 'gatekeeper' responsible for maintaining the repository, and identifying long-term funding sources. The subcommittees would also coordinate with entities undertaking activities related to the CCWMP to ensure the data and information being generated is placed in the Watershed Data Repository and made available. Development of a Watershed Data Repository can serve many purposes, three of which are described below:

1. It provides a single point of access to information resources pertinent to Calleguas Creek, thus simplifying the process of data collection efforts required by individuals and entities interested in conducting various evaluations within the Watershed.
2. The information contained within the repository can be used as the basis for developing public outreach and educational materials aimed at improving the public's knowledge and understanding of Watershed processes and issues, and what actions they can take to help implement and support various solutions to these issues.
3. The repository can be used as a checklist in determining if all the necessary information required for a particular technical evaluation exists, in what form, and who should be contacted about obtaining it.

Future Watershed Data Repository implementation efforts should focus on at least three additional issues:

1. Determine appropriate data and metadata compliance standards for the development of spatial and non-spatial data. This effort should be coordinated with the various public agencies and entities actively developing data within the Watershed. For consistency and cost effectiveness, an effort should be made to incorporate and adopt existing standards that may have already been developed by other entities within the Watershed, such as the County of Ventura.
2. Identify and establish a single entity responsible for maintaining the Watershed Data Repository. It is important to determine the anticipated level of effort required and the appropriate technology and skills the selected entity needs to maintain. For example, the initial Watershed Data Repository functions within the context of a standard website. If an interactive mapping application or database query tool is added to the repository, additional hardware and software and the skills to develop and manage data within these tools may be required.
3. Form a Technical Working Group composed of representatives from the CCWMP, local jurisdictions and other entities developing GIS and database information within the Watershed to determine the appropriate applications that should be developed within the context of the repository for the benefit of everyone working on Watershed-related work products and issues. The group may decide that the existing level of effort, which includes a listing of contact information and the ability to download certain datasets and tools, is sufficient and no further development is required. However, the group may also determine that additional features may be appropriate, in which case they would need to determine which technologies to utilize and what effects those decisions have on the hosting and management of the repository.

Placing newly obtained data into the data repository has the added benefit of providing a central location to obtain any existing data on the Watershed, which will minimize data collection efforts for planning agencies and the public.

Additionally, as part of the Brine Line project, a water quality monitoring program has been established as discussed in the previous subsection. These surface water and groundwater data can be made available to the SWRCB SWAMP and GAMAP programs.

Ventura Countywide Integrated Regional Water Management Plan (VCIRWMP):

Efforts early in the process resulted in creation of a website to display information regarding the Group's reports, goals and objectives, and other important information and resources regarding local and Statewide water management planning. Recently a new website (discussed below under "WCVC") has been created and now reflects the integration of the two watershed planning areas.

The VCIRWMP Group recognized early on that a committee was needed to define goals and objectives, define data needs, and determine how the data should be gathered and by whom. The committee met regularly and determined that an abundance of data was already being collected by various agencies and organizations and that one concern was that no one entity knew the types and extent of data available within the other organizations. From that point forward, the effort was to catalog the data available by type, how it is maintained, responsible party contacts, age of data and how frequently it was updated. This approach was thought to be the most efficient and encouraged greater communication among agencies and organizations.

In order to ascertain the available data and its various properties, a table was created by the committee which lists possible data availability by type of entity (e.g., sanitation districts, water purveyors, groundwater management agencies, etc.) The tables have been distributed to all participating and stakeholder organizations for completion. The information has begun to be organized and will be made available for use by any interested party. A copy of the table depicting the types of agencies and the data they may possess is shown in Appendix D.

The committee determined a format for presenting the information of available data and it was further determined that a database should be created to manage and present the information. Consequently, a Microsoft Access database is in development which has the capability of being sorted in a number of ways to present available data to those who desire it. Accuracy of data is vital, and if not currently accurate, it will be noted that the data are estimates, projections, or older data that may have become outdated. Appropriate notes pertaining to the specific data will be presented. Once the database becomes "live," it will be posted on the WCVC website and an electronic file will be made available to all watershed management plan stakeholders including appropriate State and Federal agencies.

Typical reports which may be produced from this Database include:

- What data each organization possesses
- What organizations possess individual types of data
- Currency, frequency, contact information, and other properties for each data.

Efforts are being made to integrate additional capability into this Database. It is envisioned that the Database contain additional general information pertaining to the participating organizations; proposed and envisioned projects; project status; possible funding sources; and whether the

projects meet Statewide Priorities, Program Preferences, IRWMP Objectives, and to which Water Management Strategies the projects relate.

Additional reports which may be produced from this Database include:

- Contact information for each organization
- Mailing labels for any combination of organizations
- Information about any applied for project, future project or concept project
- Organizations and/or proposed projects sorted by watershed
- Projects sorted by project types
- Criteria applicable to each project

A copy of the Data Table Relationships depicting the type of data and its properties and how it might be sorted is provided in Appendix E.

Watersheds Coalition of Ventura County (WCVC): The consolidation of the two water management plans has been a recent occurrence. The data needs, available data and emerging data are being coordinated and integrated as much as possible. Efforts have already been, and will continue to be made, to integrate and link data, and expand the Available Data Database to incorporate the agencies and entities of both organizations. The database is dynamic and will be updated regularly.

A new website (www.watershedscoalition.org) reflects that the consolidation has been established and data has been migrated from the old website. The new website contains the data mentioned above under "VCIRWMP," plus data on each of the three watersheds; maps; a library of reports/studies; contact information; a list of all participating agencies; links to appropriate Federal, State and local agencies, local environmental organizations, and other helpful websites. The Calleguas Creek Watershed Group will continue to develop its data repository and maintain data on its website for its own planning and management purposes; however, maximum efforts will be made to link that website with the WCVC website and promote an integrated data repository as a whole. The WCVC website will be augmented and updated as new information is generated.

The Ventura County Watershed Protection District recently completed a database entitled "Inventory of Public and Private Water Purveyors in Ventura County." This database is available in printed form and on compact disc. The database provides information on the location and contacts; the wholesale water district area in which it lies; officers, governing board; staff; website; wells; connections; and comments. It has provided a valuable source of information for the Available Data Database for water purveyors.

SECTION 8.0 COORDINATION WITH PLANNING AND STATE/FEDERAL AGENCIES

8.1 Coordination with and Relation to Local Land Use Planning

The Watersheds Coalition of Ventura County (WCVC) IRWM Plan represents the consolidation and augmentation of two IRWM plans - the Ventura Countywide Integrated Regional Water Management (VCIRWM) Plan developed for the areas within the two western watersheds in Ventura County (Santa Clara and Ventura Rivers) and the Calleguas Creek Watershed Management Plan (CCWMP) for Calleguas Creek – into a single plan.

The Interim VCIRWM Plan, submitted to the State by the VCIRWMP Group in July 2005 and this Final IRWM Plan, was prepared through a Memorandum of Understanding between the County of Ventura and a number of local agencies by Ventura County's Resource Management Agency, Planning Division. This is the land-use planning agency responsible for land use decisions in the unincorporated areas of Ventura County. There are ten Cities, each with their own land-use planning agencies. Most projects envisioned within this Plan in some way affect, or are affected by, land use planning. Development of this IRWM Plan and associated implementation strategies, is being coordinated with the ten Cities through the City/County Planning Association (County and City Planning Directors) and direct contact with each City's planning agency. A number of water management strategies can be effectively implemented through land-use policies and controls, many of which are already in place throughout Ventura County.

The Calleguas Creek Watershed Management Plan/IRWMP was prepared under the auspices of the Calleguas Creek Steering Committee and included stakeholders from local Cities, water districts and planning entities, among many others. The Land Use Subcommittee of the Calleguas Creek Steering Committee provides a link between local planning agencies and the IRWMP by offering a forum for discussion in their meetings, providing accurate, consistent land-use planning information, and incorporating local planning documents and goals into the project objectives.

Examples of existing controls and/or policies which address water supply, water use, protection of wetlands and other aquatic habitats (streams, lakes), water quality and flood control, include water efficient landscape ordinances, general plan policies, specific plan policies, conditions on new development regarding efficient plumbing fixtures, zoning ordinance requirements, requirements to use recycled wastewater for large scale turf areas when feasible, CEQA mitigation measures, stormwater management best management practices, requirements for developments to obtain "can-and-will-serve" letters to assure adequate supply of water to meet future needs, and others. Under consideration are land use policies which restrict development within a certain number of feet of a water course (setback requirements), other means to restrict certain types of developments and uses in the floodplain, "bio-friendly" drainage courses, and greater opportunities for percolation in hardscaped areas.

Among the WCVC members are representatives of local Cities and the County. Each City has its own land use planning agency, as does the County. Some Cities also supply water. The general plan (long-range plan) is the primary land use planning document adopted by Cities and the County which addresses water resources and infrastructure. Urban water management plans, watershed plans, stormwater management plans and water master plans are the types of plans

typically adopted by water agencies. General plans developed by land use planning agencies are coordinated with water agencies, and the plans developed by water agencies are typically coordinated with land use planning agencies.

The WCVC IRWMP has been based, in part, on the numerous water plans and studies that have been developed in recent years (See Appendix F and Bibliography for more information about these studies and plans).

In addition to the list of plans and studies, the WCVC has been closely involved in the preparation of the IRWMP. The WCVC members represent virtually all of the stakeholders in water management, and their comments and review have been critical in ensuring that existing plans and documents have been included and taken into account.

In addition, local land use planning agencies have been involved, through the City/County Planning Association (CCPA), which meets monthly, and through individual efforts with each City planning agency to assure coordination of appropriate land use plans, programs, and policies. The CCPA has been asked to help develop a menu of guidelines and policies which positively affect water use and management (i.e., watercourse setback policies, CEQA mitigation measures, development standards, landscape requirements) and to encourage their policy-makers to adopt these within their jurisdictions.

8.2 Coordination with State and Federal Agencies

The County of Ventura has a long history of working with State and Federal agencies to address water management issues. County staff and Board members, and staff and elected officials from local water agencies and other organizations, have worked closely over the years with staff/Board members from the Regional Water Quality Control Board, the Department of Water Resources, the Department of Health Services, the State Water Resources Control Board, the U.S. Bureau of Reclamation, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Forest Service, the California Department of Fish and Game, the Environmental Protection Agency, and others. The County has received numerous grants and low interest loans over the past 35 years, beginning with the Section 208 Water Quality Management program grant.

As mentioned in the Stakeholder section above, there is already extensive coordination and cooperation among local agencies through the WCVC and the Association of Water Agencies of Ventura County (AWA). The WCVC consists of over 60 local agencies that are actively participating in the development of Proposition 50, Chapter 8, Grant proposals as well as guiding development of the WCVC IRWM Plan. The Association of Water Agencies has over 150 members representing water districts large and small, consultants, suppliers, and large water users.

WCVC and AWA members have a long history of cooperative relationships with State and Federal agencies. These agencies include the Regional Water Quality Control Board/State Water Resources Control Board, the Department of Water Resources, the Department of Fish and Game, the Natural Resources Conservation Service, the U.S. Bureau of Reclamation, the U.S. Forest Service, the National Oceanic and Atmospheric Administration, the Army Corps of Engineers, and the U.S. Fish and Wildlife Service. The distribution list of interested parties includes over 100 names/agencies. Local agency members regularly work with State and Federal agencies. These local agencies will continue to act as liaisons with State and Federal agencies, as well as providing information on State and Federal agency regulations, data protocols, and other necessary information.

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GLOSSARY OF TERMS

A

ACRE-FOOT - The quantity of water required to cover one acre to a depth of one foot; equal to 43,560 cubic feet, or approximately 325,851 gallons.

ALLUVIAL - Sediment deposited by flowing water, such as in a riverbed.

ALLUVIAL AQUIFER - Earth, sand, gravel or other rock or mineral materials laid down by flowing water, capable of yielding water to a well.

ANADROMOUS: Pertaining to fish that spend a part of their life cycle in the sea and return to freshwater streams to spawn.

APPLIED WATER DEMAND - The quantity of water that would be delivered for urban or agricultural applications if no conservation measures were in place.

AQUIFER - An underground layer of rock, sediment or soil, or a geological formation/unit that is filled or saturated with water in sufficient quantity to supply pumping wells.

ARID: A term describing a climate or region in which precipitation is so deficient in quantity or occurs so infrequently that intensive agricultural production is not possible without irrigation.

ARTIFICIAL RECHARGE - The addition of water to a groundwater reservoir by human activity, such as irrigation or induced infiltration from streams, wells, or recharge/spreading basins. See also GROUNDWATER RECHARGE, RECHARGE BASIN.

B

BEDROCK AQUIFER: A consolidated rock deposit or geological formation of sufficient hardness and lack of interconnected pore spaces, but which may contain a sufficient amount of joints or fractures capable of yielding minimal water to a well.

BENEFICIAL USES: Include fish, wildlife habitat, and education, scientific and recreational activities which are dependent upon adequate water flow thorough rivers, streams and wetlands. The Regional Water Quality Control Board's Basin 4A Plan categorizes beneficial uses per water quality standards.

BEST MANAGEMENT PRACTICE (BMP): An urban water conservation (water use efficiency) measure that the California Urban Water Conservation Coalition agrees to implement among member agencies. The BMP's are intended to reduce long term urban water demand.

BRACKISH WATER - Water containing dissolved minerals in amounts that exceed normally acceptable standards for municipal, domestic, and irrigation uses. Considerably less saline than sea water.

C

CONFINED AQUIFER: A water-bearing subsurface stratum that is bounded above and below by formations of impermeable, or relatively impermeable, soil or rock.

CONJUNCTIVE USE - The operation of a groundwater basin in coordination with a surface water storage and conveyance system. The purpose is to recharge the basin during years of above-average water supply to provide storage that can be withdrawn during drier years when surface water supplies are below normal.

CONSERVATION - *Urban water conservation or water use efficiency* includes reductions realized from voluntary, more efficient, water use practices promoted through public education and from State-mandated requirements to install water-conserving fixtures in newly constructed and renovated buildings. *Agricultural water conservation or agricultural water use efficiency*, means reducing the amount of water applied in irrigation through measures that increase irrigation efficiency. See NET WATER CONSERVATION.

CRITICAL DRY PERIOD - A series of water-deficient years, usually an historical period, in which a full reservoir storage system at the beginning is drawn down (without any spill) to minimum storage at the end.

CRITICAL DRY YEAR - A dry year in which the full commitments for a dependable water supply cannot be met and deficiencies are imposed on water deliveries.

CUBIC FEET PER SECOND (cfs) - A unit of measurement describing the flow of water. A cubic foot is the amount of water needed to fill a cube that is one foot on all sides, about 7.5 gallons.

D

DESALTING/DESALINATION - A process that converts sea water or brackish water to fresh water or an otherwise more usable condition through removal of dissolved solids.

DISTRIBUTION UNIFORMITY (DU): The ratio of the average low-quarter depth of irrigation water infiltrated to the average depth of irrigation water infiltrated, for the entire farm field, expressed as a percent.

DRAINAGE BASIN: The area of land from which water drains into a river; as, for example, the Sacramento River Basin, in which all land area drains into the Sacramento River. Also called, "watershed".

DWR - California **D**epartment of **W**ater **R**esources.

E

EFFICIENT WATER MANAGEMENT PRACTICE (EWMP): An agricultural water conservation measure that water suppliers could implement. EWMPs are organized into three categories: 1) Irrigation Management Services; 2) Physical and Structural Improvements; and 3) Institutional Adjustments.

EFFLUENT: Waste water or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant.

ESTUARY: The lower course of a river entering the sea influenced by tidal action where the tide meets the river current.

EVAPOTRANSPIRATION (ET): The quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surfaces. Quantitatively, it is expressed in terms of depth of water per unit area during a specified period of time.

F

FIRM YIELD - The maximum annual supply of a given water development that is expected to be available on demand, with the understanding that lower yields will occur in accordance with a predetermined schedule or probability.

FOREBAY: A groundwater basin immediately upstream or upgradient from a larger basin or group of hydrologically connected basins. Also, a reservoir or pond situated at the intake of a pumping plant or power plant to stabilize water levels.

G

GROUNDWATER - Water that occurs beneath the land surface and completely fills all pore spaces of the alluvium or rock formation in which it is located.

GROUNDWATER BASIN - A groundwater reservoir, together with all the overlying land surface and underlying aquifers that contribute water to the reservoir.

GROUNDWATER MINING - The withdrawal of water from an aquifer greatly in excess of replenishment; if continued, the underground supply will eventually be exhausted or the water table will drop below economically feasible pumping lifts.

GROUNDWATER OVERDRAFT - The condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that replenishes the basin over a period of years.

GROUNDWATER RECHARGE - Increases in groundwater quantities or levels by natural conditions or by human activity. See also ARTIFICIAL RECHARGE.

GROUNDWATER STORAGE CAPACITY - The space contained in a given volume of deposits. Under optimum use conditions, the usable groundwater storage capacity is the volume of water that can, within specified economic limitations, be alternately extracted and replaced in the reservoir. (Directly related to SAFE YIELD).

GROUNDWATER TABLE - The upper surface of the zone of saturation (all pores of subsoil filled with water), except where the surface is formed by an impermeable body.

I

INSTREAM USE: Use of water that does not require diversion from its natural watercourse. For example, the use of water for navigation, recreation, fish and wildlife, esthetics, and scenic enjoyment.

IRRIGATION EFFICIENCY: The efficiency of water application. Computed by dividing evapotranspiration of applied water by applied water and converting the result to a percentage. Efficiency can be computed at three levels: farm, district, or basin.

IRRIGATION RETURN FLOW: Applied water that is not transpired, evaporated, or deep percolated into a groundwater basin, but that returns to a surface water supply.

L

LEACHING: The flushing of salts from the soil by the downward percolation of applied water.

M

M&I - Municipal and Industrial (water use); generally urban uses for human activities.

MILLIGRAMS PER LITER (MG/L) - The mass (milligrams) of any substance dissolved in a standard volume (liter) of water. One liter of pure water has a mass of 1000 grams. For dilute solutions where water is the solvent medium, the numerical value of mg/l is very close to the mass ratio expressed in parts per million (ppm).

MINERALIZATION (OF GROUNDWATER): The addition of inorganic substances, usually dissolved from surface or aquifer material, to groundwater.

N

NATURALLY OCCURRING CONTAMINANTS (IN GROUNDWATER): A deleterious substance present in groundwater which is of natural origin, i.e., not caused by human activity.

NET WATER CONSERVATION - The difference between the amount of applied water conserved and the amount by which this conservation reduces usable return flows.

NET WATER DEMAND - The applied water demand less water saved through conservation efforts (= net applied water = actual water used).

NONPOINT SOURCE - A contributing factor to water pollution that cannot be traced to a specific source. See Point Source.

O

OVERDRAFT - Withdrawal of groundwater in excess of a basin's perennial yield. See also PROLONGED OVERDRAFT.

P

PARTS PER MILLION (PPM): A ratio of two substances, usually by mass, expressing the number of units of the designated substance present in one million parts of the mixture. For water solutions, parts per million is almost identical to the milligrams per liter.

PER-CAPITA WATER USE: The amount of water used by or introduced into the system of an urban water supplier divided by the total residential population; normally expressed in gallons per-capita-per-day (gpcd).

PERCHED GROUNDWATER: Groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater with which it is not hydrostatically connected.

PERCOLATION - The downward movement of water through the soil or alluvium to the groundwater table.

PERENNIAL YIELD - "The rate at which water can be withdrawn perennially under specified operating conditions without producing an undesired result" (Todd, 1980). An undesired result is an adverse situation such as:
(1) a reduction of the yield of a water source; (2) development of uneconomic pumping lifts; (3) degradation of water quality; (4) interference with prior water rights; or (5) subsidence. Perennial yield is an estimate of the longterm average annual amount of water that can be withdrawn without inducing a long-term progressive drop in water level. The term "safe yield" is sometimes used in place of perennial
yield, although the concepts behind the terms are not identical: the older concept of "safe yield" generally implies a fixed quantity equivalent to a basin's average annual natural recharge, while the "perennial yield" of a basin or system can vary over time with different operational factors and management goals.

PERMEABILITY: The capability of soil or other geologic formation to transmit water.

POINT SOURCE: Any discernable, confined and discrete conveyance site from which waste or polluted water is discharged into a water body, the source of which can be identified. See also Nonpoint Source.

POLLUTION (OF WATER): The alteration of the physical, chemical, or biological properties of water by the introduction of any substance into water that adversely affects any beneficial use of water.

POTABLE WATER: Water suitable for human consumption without undesirable health consequences. Drinkable. Meets Department of Health Services drinking water requirements.

PROLONGED OVERDRAFT - Net extractions in excess of a basin's perennial yield, averaged over a period of ten or more years.

R

RECHARGE BASIN - A surface facility, often a large pond, used to increase the infiltration of water into a groundwater basin.

RECYCLED WATER - Urban wastewater that becomes suitable for a specific beneficial use as a result of treatment.

REVERSE OSMOSIS: Method of removing salts from water by forcing water through a membrane.

RETURN FLOW - The portion of withdrawn water that is not consumed by evapotranspiration and returns instead to its source or to another body of water.

REUSE - The additional use of once-used water.

RIPARIAN: Of, or on the banks of, a stream or other of water.

RIPARIAN VEGETATION: Vegetation growing on the banks of a stream or other body of water.

RUNOFF: The surface flow of water from an area; the total volume of surface flow during a specified time.

RWQCB - California **R**egional **W**ater **Q**uality **C**ontrol **B**oard.

S

SAFE YIELD (GROUNDWATER) - The maximum quantity of water that can be withdrawn from a groundwater basin over a long period of time without developing a condition of overdraft. Sometimes referred to as sustained yield.

SALINITY - Generally, the concentration of mineral salts dissolved in water. Salinity may be measured by weight (total dissolved solids), electrical conductivity, or osmotic pressure. Where seawater is the major source of salt, salinity is often used to refer to the concentration of chlorides in the water. See also TDS.

SERIOUS OVERDRAFT - Prolonged overdraft that results, or would result, within ten years, in measurable, unmitigated adverse environmental or economic impacts, either longterm or permanent. Such impacts include but are not limited to seawater intrusion, other substantial quality degradation, land surface subsidence, substantial effects on riparian or other environmentally sensitive habitats, or unreasonable interference with the beneficial use of a basin's resources.

SEAWATER INTRUSION: Occurs when extractions exceed freshwater replenishment of groundwater basins and causes seawater to travel laterally inland into fresh water aquifers.

SECONDARY TREATMENT: In sewage treatment, the biological process of reducing suspended, colloidal, and dissolved organic matter in effluent from primary treatment systems. Secondary treatment is usually carried out through the use of trickling filters or by an activated sludge process.

SPREADING BASIN – See Recharge Basin.

SPREADING GROUNDS – See Recharge Basin.

SWP - **S**tate **W**ater **P**roject.

SWRCB - California **S**tate **W**ater **R**esources **C**ontrol **B**oard.

T

TERTIARY TREATMENT: In sewage, the additional treatment of effluent beyond that of secondary treatment to obtain a very high quality of effluent.

TOTAL DISSOLVED SOLIDS (TDS), a quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter (mg/l) or in parts per million (ppm). See also Salinity.

TURBIDITY - A measure of cloudiness and suspended sediments in water. Water high in turbidity appears murky and contains sediments in suspension. Turbid water may also result in higher concentrations of contaminants and pathogens, that bond to the particles in the water.

W

WATER QUALITY - A term used to describe the chemical, physical, and biologic characteristics of water with respect to its suitability for a particular use.

WATER RECLAMATION: The treatment of water of impaired quality, including brackish water and seawater, to produce a water of suitable quality for the intended use.

WATER RIGHT - A legally protected right, granted by law, to take possession of water occurring in a water supply and to divert the water and put it to beneficial uses.

WATERSHED - The area or region drained by a reservoir, river, stream, etc.; drainage basin.

WATER TABLE - The surface of underground, gravity-controlled water.

APPENDICES

APPENDIX A

AUTHORIZING RESOLUTIONS

VCIRWMP Resolution Number 06-01
WCVC Resolution Number 06-01

AUTHORIZING RESOLUTION NO. 06-01

A JOINT RESOLUTION BETWEEN THE VENTURA COUNTYWIDE INTEGRATED REGIONAL WATER MANAGEMENT (VCIRWM) GROUP AND THE CALLEGUAS CREEK WATERSHED STEERING COMMITTEE TO FORM THE "WATERSHEDS COALITION OF VENTURA COUNTY" FOR PURPOSES OF CONSOLIDATING INTEGRATED REGIONAL WATER MANAGEMENT PLANS (IRWMP); SUBMITTAL OF PROPOSITION 50, IMPLEMENTATION GRANT APPLICATIONS; AND PURSUIT OF FUTURE INTEGRATED REGIONAL WATER MANAGEMENT FUNDING.

Whereas, the Ventura Countywide Integrated Regional Water Management (VCIRWM) Group was formed in 2004 by resolution and/or memoranda of agreements with twenty-one jurisdictions and/or agencies, including more than three public agencies, at least two of which have statutory authority over water supply, water quality, flood control and storm water; and

Whereas, the Calleguas Creek Steering Committee was formed in 1996 and reaffirmed its authority in July 2003 through memoranda of agreements with key stakeholders, including more than three public agencies, at least two of which have statutory authority over water supply, water quality, flood control and storm water; and

Whereas, the County of Ventura was authorized, designated and requested by the VCIRWM Group to develop an Integrated Regional Water Management Plan (IRWMP) and apply on their behalf for Proposition 50, Planning and Implementation Grants; and

Whereas, Calleguas Municipal Water District was authorized, designated and requested by the Calleguas Creek Steering Committee to prepare and apply on their behalf for Proposition 50 Implementation Grants based on their adopted Calleguas Creek Watershed IRWMP; and

Whereas, the Department of Water Resources, as one of the agencies authorized to oversee Proposition 50 grants, requested the voluntary consolidation of IRWMP efforts among regions for the purposes of application for Proposition 50 Implementation Grant funds; and

Whereas, the VCIRWM Group and Calleguas Creek Steering Committee agreed, November 22, 2005 and December 15th, 2005, respectively, to consolidate the two IRWMPs into one planning region and submit a single application for Proposition 50, Implementation Grant funds;

Now therefore be it jointly resolved that,

1.) both the VCIRWM Group and the Calleguas Creek Steering Committee welcome the opportunity to collaborate on important water issues within the region and hereby authorize the creation of and their participation in the "Watersheds Coalition of Ventura County"; and

2.) that the Watersheds Coalition of Ventura County shall oversee the following:

a) the consolidation of the two IRWMPs; and
b) the submittal of Proposition 50 Implementation Grant Applications; and
c) the pursuit of future IRWM funding.

ADOPTED, SIGNED AND APPROVED this

4/13/06 (date)

Ayes: 12

Noes: 0

Susan Hughes

Susan Hughes, Chair
Ventura Countywide IRWM Group

4/19/06 (date)

Ayes: ALL VOTING MEMBERS PRESENT

Noes:

Judy Mikels

Judy Mikels, Chair
Calleguas Creek Steering Committee

WATERSHEDS COALITION OF VENTURA COUNTY

AUTHORIZING RESOLUTION NO. 06-01

A RESOLUTION OF THE WATERSHEDS COALITION OF VENTURA COUNTY (WCVC) THAT AUTHORIZES, DESIGNATES AND REQUESTS THE COUNTY OF VENTURA TO FILE AN APPLICATION FOR A PROPOSITION 50 IMPLEMENTATION GRANT, AND TO ENTER INTO AN AGREEMENT WITH THE STATE.

Whereas, the Ventura Countywide Integrated Regional Water Management (VCIRWM) Group was formed in 2004 by resolution and/or memoranda of agreements with twenty-one jurisdictions and/or agencies, including more than three public agencies, at least two of which have statutory authority over water supply, water quality, flood control and storm water; and

Whereas, the Calleguas Creek Steering Committee was formed in 1996 and reaffirmed its authority in July 2003 through memoranda of agreements with key stakeholders, including more than three public agencies, at least two of which have statutory authority over water supply, water quality, flood control and storm water; and

Whereas, the County of Ventura was authorized, designated and requested by the VCIRWM Group to develop an Integrated Regional Water Management Plan (IRWMP) and apply on their behalf for a Planning Grant and a Step 1 Implementation Grant under Proposition 50; and

Whereas, Calleguas Municipal Water District was authorized, designated and requested by the Calleguas Creek Steering Committee to prepare and apply on their behalf for a Step 1 Implementation Grant under Proposition 50; and

Whereas, the Department of Water Resources, as one of the agencies authorized to oversee Proposition 50 grants, requested the voluntary consolidation of IRWMP efforts among regions for the purposes of application for Step 2 Implementation Grant funds under Proposition 50; and

Whereas, the Ventura Countywide Integrated Regional Water Management Plan Group and the Calleguas Creek Steering Committee agreed, November 22, 2005 and December 15th, 2005, respectively, to consolidate the two IRWMPs into one planning region and submit a single application for Step 2 Implementation Grant funds under Proposition 50; and

Whereas, in March 2006 our newly Consolidated Region, received a call-back from the State to apply for Step 2 Implementation Grant funds under Proposition 50; and

Whereas, in April 2006 the Watersheds Coalition of Ventura County (WCVC) was formed by joint resolution of the Ventura Countywide Integrated Regional Water Management Group and the Calleguas Creek Steering Committee to oversee the consolidation of the two IRWMPs, submit a Step 2 Implementation Grant application, and pursue future IRWM funding;

Now therefore be it resolved by the WCVC that application be made to the California Department of Water Resources and/or the State Water Resources Control Board to obtain an Integrated Regional Water Management Implementation Grant pursuant to the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq). The County of Ventura is hereby authorized and designated on behalf of the WCVC and is requested to work with Coalition representatives to prepare the necessary data, make investigations, execute, and file such application and execute a grant agreement with the California Department of Water Resources and/or the State Water Resources Control Board.

Passed and adopted at a meeting of the WCVC on April 27, 2006.

The undersigned hereby certify that the foregoing Resolution No. 06-01 was duly adopted by the Watersheds Coalition of Ventura County by the following vote:

Ayes: 11
Noes: 0

Susan Hughes, Co-chair

Dee Zinke, Co-chair

APPENDIX B

IRWM Plan Standards

Whether applying for a grant to develop or complete an IRWM Plan or an Integrated Coastal Watershed Management Plan (Planning Grant) or a grant to implement a proposal that is consistent with an adopted IRWM Plan (Implementation Grant), the proposed or adopted Plan must meet the standards outlined in this Appendix. The "Plan" need not be called an "IRWM Plan." Existing regional planning documents may be utilized as a functionally equivalent plan. These may include, but are not limited to:

- Watershed management plans,
- Integrated resource plans,
- Urban water management plans,
- Habitat conservation plans,
- Multi-species conservation plans,
- Groundwater management plan,
- Floodplain management plans,
- Regional drinking water quality plans, or
- Other regional planning efforts.

While any one planning document may not meet these standards, a collection of local and regional plans may constitute a functional equivalent; provided that the applicant details in the application how the various plans function together to form the basis of an IRWM Plan that meets these standards.

For the purposes of this Appendix, "Plan" refers to an IRWM Plan or a functional equivalent set of planning documents. Listed below are the IRWM Plan standards.

A. **Regional Agency or Regional Water Management Group** – Describe the regional water management group **or** regional agency responsible for development and implementation of the Plan. Include the member agencies and organizations and their management responsibilities related to water. Demonstrate that all agencies and organizations, including but not limited to, public agencies, not-for-profit organizations, and privately owned water utilities regulated by the Public Utilities Commission, that were necessary to address the objectives and water management strategies of the Plan were involved in the planning process.

B. **Region Description** – Explain why the region is an appropriate area for integrated regional water management. Describe internal boundaries within the region (boundaries of municipalities; service areas of individual water, wastewater, and land use agencies, including those not involved in the Plan; groundwater basin boundaries, watershed boundaries, County boundaries, etc.), major water related infrastructure, and major land-use divisions. Describe the quality and quantity of water resources within the region, including surface waters, groundwater, recycled water, imported water, and desalted water. Describe water supplies and demand for a minimum 20-year planning horizon. Describe important ecological processes and environmental resources within the regional boundaries and the associated water demands to support environmental needs. Describe the social and cultural makeup of the regional community; identify important cultural or social values. Describe economic conditions and important economic trends within the region. In certain cases,

individual agencies or organizations may participate in different regional efforts depending on geography, Plan objectives, or other relevant factors. For such cases, the application should include an explanation of why participation in various regional efforts is appropriate.

C. **Objectives** – Identify IRWM Plan objectives and the manner in which they were determined. The Plan must address major water related objectives and conflicts within the region, including, at a minimum, water supply, groundwater management, Ecosystem restoration, and water quality.

D. **Water Management Strategies** – Document the range of water management strategies considered to meet the objectives. Strategies to be considered may include but are not limited to:

Water Management Strategies

- Ecosystem Restoration*
- Environmental and habitat protection and improvement*
- Water Supply Reliability*
- Flood management*
- Groundwater management*
- Recreation and public access*
- Stormwater capture and management*
- Water conservation*
- Water quality protection and improvement*
- Water recycling*
- Wetlands enhancement and creation*
- Conjunctive use
- Desalination
- Imported water
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

** Pursuant to CWC §§ 79562.5 and 79564, these water management strategies must be considered to meet the minimum IRWM Plan Standards.*

E. **Integration** – Present the mix of water management strategies selected for inclusion in the Plan and discuss how these strategies work together to provide reliable water supply, protect or improve water quality, and achieve other objectives. Include a discussion of the added benefits of integration of multiple water management strategies.

F. **Regional Priorities** – Include short-term and long-term priorities for implementation of the Plan. Discuss the process for modifying priorities in response to regional changes.

G. **Implementation** – Identify specific actions, projects, and studies, ongoing or planned, by which the Plan will be implemented. Identify the agency(ies) responsible for project implementation and clearly identify linkages or interdependence between projects. Demonstrate economic and technical feasibility on a programmatic level.

Identify the current status of each element of the Plan, such as existing infrastructure, feasibility, pilot or demonstration project, design completed, etc. Include timelines for all active or planned projects and identify the institutional structure that will ensure Plan implementation.

H. **Impacts and Benefits** – Discuss at a screening level the impact and benefits from Plan implementation. Include an evaluation of potential impacts within the region and in adjacent areas from Plan implementation. Identify the advantages of the regional plan; including a discussion of the added benefits of the regional plan as opposed to individual local efforts. Identify which objectives necessitate a regional solution. Identify interregional benefits and impacts. Describe the impacts and benefits to environmental justice or disadvantaged communities. Include an evaluation of impacts/benefits to other resources, such as air quality or energy.

I. **Technical Analysis and Plan Performance** – Include a discussion of data, technical methods, and analyses used in development of the Plan. Include a discussion of measures that will be used to evaluate Project/Plan performance, monitoring systems that will be used to gather performance data, and mechanisms to adapt project operations and Plan implementation based on performance data collected.

J. **Data Management** – Include mechanisms by which data will be managed and disseminated to stakeholders and the public, and include discussion of how data collection will support Statewide data needs. At a minimum assess the state of existing monitoring efforts for water quantity and water quality, and identify data gaps where additional monitoring is needed. *2004 Integrated Regional Water Management Grant Program Guidelines* 16

If the Plan includes a water quality component, include a discussion of the integration of data into the SWRCB's Surface Water Ambient Monitoring Program and Groundwater Ambient Monitoring and Assessment Program. Appendix E provides a listing of web links for accessing information on the SWRCB's Statewide data management strategies.

K. **Financing** – Identify beneficiaries and identify potential funding/financing for Plan implementation. Discuss ongoing support and financing for operation and maintenance of implemented projects.

L. **Statewide Priorities** – Identify Statewide or State agency priorities that will be met or contributed to by implementation of the Plan, proposal, or specific projects. Describe how the Plan, proposal, or specific projects were developed pursuant to Statewide Priorities (Section II.E).

M. **Relation to Local Planning** – Discuss how the IRWM Plan relates to planning documents and programs established by local agencies. Demonstrate coordination with local land-use planning decision-makers. Discuss how local agency planning documents relate to the IRWM strategies and the dynamics between the two planning documents. Discuss the linkages between the Plan and local planning documents.

N. **Stakeholder Involvement** – Identify stakeholders included in developing the Plan. Identify how stakeholders were identified, how they participate in planning and implementation efforts, and how they can influence decisions made regarding water management. Include documentation of stakeholder involvement such as inclusion of signatory status or letters of support from non-agency stakeholders, i.e. those who have not "adopted" the Plan. Include a discussion of mechanisms and processes that have been or will be used to facilitate stakeholder involvement and communication during implementation of the Plan. Discuss watershed or other partnerships

developed during the planning process. Discuss disadvantaged communities within the region and their involvement in the planning process. Discuss efforts to identify and address environmental justice needs and issues within the region. Identify possible obstacles to Plan implementation.

O. **Coordination** – Identify State or Federal agencies involved with strategies, actions, and projects. Identify areas where a State agency or other agencies may be able to assist in communication, cooperation, or implementation of Plan components or processes, or where State or Federal regulatory decisions are required for implementation.

For Implementation Grant applications to be considered for funding, the proposed or adopted Plans must meet all of the following minimum standards:

- Adopted by January 1, 2007, by all appropriate agencies and organizations;
- Participation of at least three agencies, two of which have statutory authority over water management, which may include water supply, water quality, flood control, or stormwater management;
- Provides a map of the region showing the local agencies in the area covered by the Plan and the location of the proposed implementation projects;
- Contains one or more regional objectives;
- Documents that the following water management strategies were considered (CWC §§ 79562.5 and 79564) when formulating the IRWM Plan:
- Water supply reliability,
- Groundwater management,
- Water quality protection and improvement,
- Water recycling,
- Water conservation,
- Stormwater capture and management,
- Flood management, *2004gional Water Management Grant Program Guidelines* 17
- Recreation and public access,
- Ecosystem restoration,
- Wetlands enhancement and creation, and
- Environmental and habitat protection and improvement;
- Integrates two or more water management strategies listed in Table A-1; **and**
- Presents project prioritization and a schedule for project implementation to meet regional needs.

APPENDIX C

WATER QUALITY ISSUES

Water Quality Issues - General

Environmental Water Quality

Throughout California, water quality impairments threaten riparian and aquatic habitats, and in some cases are major impediments to ecosystem restoration. Urban, military, industrial, hydropower, mining, logging, agricultural, grazing, and recreational activities can degrade water quality. Depleted freshwater flows as a result of upstream dams, diversions, and interbasin transfers, also affect the quality of water downstream, and have public trust doctrine implications. Other water management actions and projects, such as conjunctive use, conveyance, transfers, and conservation, can also affect water quality, both positively and negatively. These pollutants also contaminate sediments, making ecosystem restoration efforts more difficult. Some environmental contaminants of concern, such as mercury and selenium, are persistent or bioaccumulative — that is, their concentration and toxicity magnifies in the food chain — and can be toxic to key food chain links, such as aquatic invertebrates (2005 California Water Plan).

Urban Impacts

USEPA's most recent National Water Quality Inventory in 2000 found that pollution from urban and agricultural runoff are the primary sources of water pollution in the U.S. Urban runoff and stormwater wash pollutants, such as nutrients (lawn fertilizers and pet wastes), pesticides, oil and grease, metals, organic chemicals, microorganisms, and debris, from city streets and other hard surfaces, that impair surface waters (including beaches) and negatively impact existing and future groundwater replenishment projects that use stormwater for recharge (2005 California Water Plan).

Drinking Water Sources

Public water systems in California have about 15,000 groundwater and 1,000 surface water sources of drinking water. About 4,000, or a quarter, of these sources have at least one detection of a regulated contaminant, usually from man-made sources, at a level greater than its MCL. The data specifically show a steady increase in the number of wells that exceed MCLs for nitrate and arsenic; moreover, the MCL for arsenic, a naturally-occurring contaminant, will drop further in 2006, affecting another 900 drinking water sources. Uranium, a naturally occurring radionuclide, and the organic chemicals trichloroethylene (TCE, an industrial solvent), 1,2-dibromo-3-chloropropane (DBCP, a now-banned nematocide) and methyl tertiary-butyl ether (MTBE, a gasoline additive), also frequently pollute drinking water sources. In addition to the one for arsenic, California will soon adopt new MCLs for perchlorate and hexavalent chromium. DHS, with the assistance of 34 counties and 500 water systems, recently completed source water assessments for 15,000 public drinking water sources in California. Initial evaluation of the assessment results indicates that groundwater sources (about 14,000 wells) are most vulnerable to septic tanks and sewage collection systems. Surface water sources are most vulnerable to surface water recreation and septic tanks. These assessments, combined with water quality monitoring, suggest that California is not doing enough to prevent nitrate pollution, an acute health hazard to infants and developing fetuses, the MCL for which has the lowest margin of safety of all regulated drinking water contaminants (2005 California Water Plan).

Emerging Contaminants

Traditionally, water agencies focus on pathogens (disease–causing microorganisms), chemicals, and disinfectant by-products (potential cancer-causing contaminants), that are regulated or will be regulated in near future. Recently, though, unregulated chemicals found in pharmaceuticals and personal care products are emerging as water contaminants. For instance, as the State's population ages, there may be increasing levels of pharmaceutical discharges in domestic wastewater and to

the environment. Such contaminants might not be removed by traditional treatment processes, and can negatively impact water recycling and groundwater recharge projects (2005 California Water Plan).

General Water Quality Improvement Tools

There are many tools — regulatory, voluntary, or incentive based — currently available for preventing pollution. The U.S. Environmental Protection Agency, State Water Resources Control Board, and Regional Water Quality Control Boards have permitting, enforcement, remediation, monitoring, and watershed-based programs to prevent pollution. Pollution can enter a water body from point sources like pipes and from nonpoint sources over a broad area like sedimentation along a long river reach. Preventing pollution from most point sources relies on a combination of source control and treatment, while preventing nonpoint source pollution generally involves the use of best management practices (BMPs) and efficient water management practices (EWMPs). The SWRCB and RWQCBs are adopting total maximum daily loads (or TMDLs), to control both point and nonpoint source pollution, in those water bodies that are not attaining their water quality standards.

The Federal Clean Water Act (CWA), contains two strategies for managing water quality. One, a technology-based approach that envisions requirements to maintain a minimum level of pollutant management using the best available technology, was the great innovation of the 1972 Act. The other, a water quality-based approach, relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. Section 303(d) of the CWA bridges these two strategies. Section 303(d) requires that the States make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the US EPA administrator deems they are appropriate) the States are to develop total maximum daily loads or TMDLs. A TMDL must account for all sources of the pollutants that caused the water to be listed. Federal regulations require that the TMDL, at a minimum, account for contributions from point sources (Federally permitted discharges) and contributions from nonpoint sources. US EPA is required to review and approve the list of impaired waters and each TMDL. If US EPA cannot approve the list or a TMDL they are required to establish them for the State.

TMDLs are established at the level necessary to implement the applicable water quality standards. A TMDL requires that all sources of pollution and all aspects of a watershed's drainage system be reviewed, not just the pollution coming from discrete conveyances (known as point sources), such as a discharge pipe from a factory or a sewage treatment plant. Point sources are defined in the Clean Water Act, Section 502.

"Nonpoint source" pollution is the release of pollutants from everything other than point sources. These include landscape scale sources such as stormwater and agricultural runoff, and dust and air pollution that find their way into water bodies. Nonpoint source pollution is not typically associated with discrete conveyances. Nonpoint sources are not defined in statute, but are considered everything that is not covered under the point source definition.

Impaired Waterbodies in Ventura County by Watershed (2003)

Δ - Proposed 2006 List to be included in 2007 IRWMP update

1. Calleguas Creek Watershed

303(d) Listed Waters/Reaches	Impairments
Calleguas Creek Reach 1 (was Mugu Lagoon)	chlordane (tissue) Copper DDT (tissue & sediment) endosulfan (tissue) Mercury nickel nitrogen PCBs (tissue) sediment toxicity sedimentation/siltation Zinc
Calleguas Creek Reach 2 (estuary to Potrero Rd - was Calleguas Creek Reaches 1 and 2)	Ammonia ChemA* (tissue) chlordane (tissue) copper, dissolved DDT (tissue & sediment) endosulfan (tissue) fecal coliform nitrogen PCBs (tissue) sediment toxicity sedimentation/siltation toxaphene (tissue & sediment)
Calleguas Creek Reach 3 (previously Potrero Rd upstream to confluence with Conejo Ck)	Chloride nitrate + nitrite sedimentation/siltation total dissolved solids

Calleguas Creek Reach 4 (was Revolon Slough Main Branch: Mugu Lagoon to Central Ave.)	Algae Boron ChemA* (tissue) chlordane (tissue & sediment) chlorpyrifos (tissue) coliform, fecal DDT (tissue & sediment) dieldrin (tissue) endosulfan (tissue & sediment) nitrogen nitrate as nitrogen (NO3) PCBs (tissue) sedimentation/siltation Selenium sulfate total dissolved solids toxaphene (tissue & sediment) toxicity trash
Calleguas Creek Reach 5 (was Beardsley Channel)	algae ChemA* (tissue) chlordane (tissue & sediment) chlorpyrifos (tissue) dacthal (sediment) DDT (tissue & sediment) dieldrin (tissue) endosulfan (tissue & sediment) nitrogen PCBs (tissue) sedimentation/siltation toxaphene (tissue & sediment) toxicity trash

2. Santa Clara River Watershed 303(d)-listed Waters (In Ventura County)

303(d) Listed Waters/Reaches	Impairments
Brown Barranca/Long Canyon	nitrate + nitrite
Hopper Creek	sulfate total dissolved solids
Piru Creek (tributary to Santa Clara River Reach 4)	pH
Pole Creek (tributary to Santa Clara River Reach 3)	sulfate total dissolved solids
Santa Clara River Estuary	ChemA* (tissue) coliform toxaphene
Santa Clara River Reach 3 (Freeman Diversion to A street)	ammonia chloride total dissolved solids
Santa Clara River Reach 9 (Bouquet Cyn Rd to abv Lang Gaging)	coliform
Sespe Creek (tributary to Santa Clara River Reach 3)	chloride pH
Torrey Canyon Creek	nitrate + nitrite
Wheeler Canyon/Todd Barranca	nitrate + nitrite sulfate total dissolved solids

3. Ventura River Watershed

303(d) Listed Waters/Reaches	Impairments
Canada Larga (Ventura River Watershed)	coliform, fecal Low DO
Matilija Creek Reach 1 (Jct. With N. Fork to Reservoir)	fish barriers
Matilija Creek Reach 2 (above Reservoir)	fish barriers
Matilija Reservoir	fish barriers
San Antonio Creek (tributary to Ventura River Reach 4)	nitrogen
Ventura River Estuary	algae coliform, fecal coliform, total eutrophic Trash
Ventura River Reach 1 (estuary to Main St.)	algae
Ventura River Reach 2 (Main St. to Weldon Canyon)	algae
Ventura River Reach 3 (Weldon Canyon to confl. w/ Coyote Cr.)	Pumping, water diversions
Ventura River Reach 4 (Coyote Creek to Camino Cielo Rd.)	Pumping, water diversions

4. Misc. Ventura Coastal WMA 303(d)-listed Waters

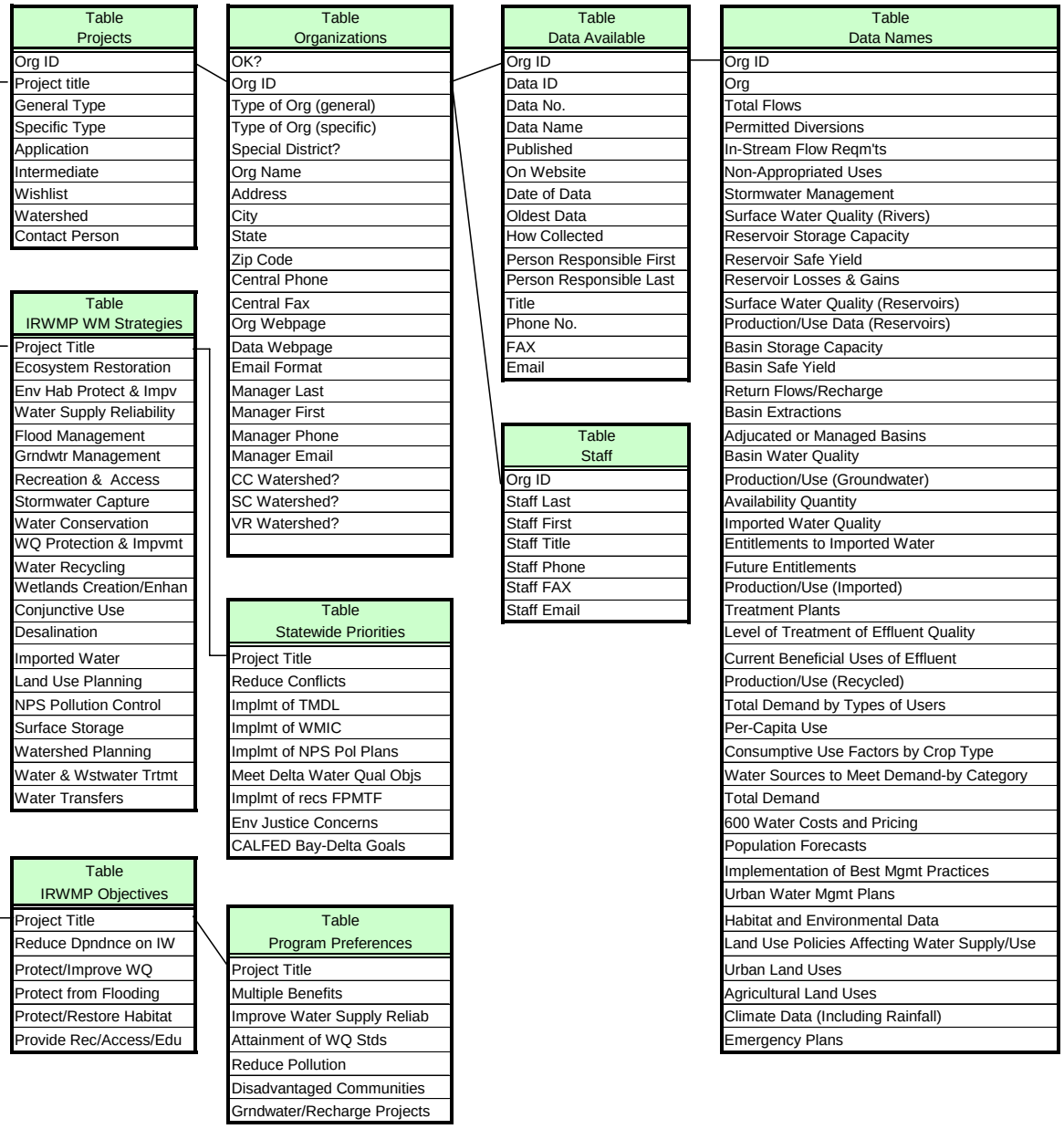
303(d) Listed Waters/Reaches	Impairments
Channel Islands Harbor	Lead (sediment) Zinc (sediment)
Channel Islands Harbor Beach	coliform
Hobie Beach (Channel Islands Harbor)	coliform
Mandalay Beach	beach closures
McGrath Beach	coliform
McGrath Lake	chlordane (sediment) coliform, fecal dieldrin (sediment) PCBs (sediment) Sediment toxicity DDT (sediment)
Ormond Beach (area 50 yds N of Oxnard Industrial Dr and a 50 yd area south of J St Dr)	coliform
Port Hueneme Harbor (Back Basins)	DDT (tissue) PCBs (tissue)
Promenade Park Beach	coliform
Rincon Beach	coliform
San Buenaventura Beach	coliform
Santa Clara River Estuary Beach/Surfers Knoll	coliform
Surfers Point at Seaside	coliform
Ventura Harbor: Ventura Keys	coliform

5. Santa Monica Bay WMA 303(d)-listed Waters

303(d) Listed Waters/Reaches	Impairments
Lake Lindero	algae chloride eutrophic odors specific conductance trash
Lake Sherwood	algae ammonia eutrophic low DO/organic enrichment Mercury (tissue)
Las Virgenes Creek	coliform low DO/organic enrichment nutrients (algae) scum/foam-unnatural sedimentation/siltation Selenium trash
Lindero Creek Reach 1	algae coliform scum/foam-unnatural Selenium trash

APPENDIX D

Water Plan Data Table Relationships



APPENDIX E

Data Inventory Table

TYPE OF DATA/ DATA SOURCE	Local Water Purveyors	Local Sanitation Agencies	County or City Agencies	State Agencies	Federal Agencies	Groundwater Management Agencies	**Other**: Local Entities, Environmental Organizations*
Surface Water Supply – By Source							
Rivers and Streams							
Total Flows (including all losses and gains)	X		X	X	X		X
Permitted Diversions	X		X	X	X		
In-stream flow requirements	X		X	X	X		
Non-appropriated Uses	X		X	X	X		
Stormwater Management	X	X	X	X	X		
Surface Water Quality	X	X	X	X	X	X	X
Reservoirs							
Reservoir Storage Capacity	X		X	X	X		
Reservoir Safe Yield	X		X	X	X		
Reservoir losses and gains (recharge, evaporation, withdrawals)	X		X	X	X		
Surface Water Quality	X		X	X	X		X
Production/Use Data	X		X	X	X		
Groundwater Supply							
Basin Storage Capacity	X		X	X	X	X	
Basin Safe Yield	X		X	X	X	X	
Return flows/recharge	X		X	X	X	X	
Basin Extractions	X		X	X	X	X	
Adjudicated or Managed Basins – Maximum	X		X	X	X	X	

TYPE OF DATA/ DATA SOURCE	Local Water Purveyors	Local Sanitation Agencies	County or City Agencies	State Agencies	Federal Agencies	Groundwater Management Agencies	**Other**: Local Entities, Environmental Organizations*
Pumping Allowed							
Basin Water Quality	X	X	X	X	X	X	
Production/Use	X		X	X	X	X	
Imported Water Supply							
Available Quantity	X		X	X	X		
Imported Water Quality	X		X	X	X		
Entitlements to Imported Water – Now being delivered	X		X	X	X		
Future Entitlements – not yet delivered	X		X	X	X		
Production/Use	X		X	X	X		
Recycled Wastewater Supply							
Treatment Plants		X	X	X			
Level of Treatment of Effluent/Quality		X		X			
Current Beneficial Uses of Effluent	X	X	X	X			
Production/Use	X	X	X	X			
Water Use/Demand							
Total Demand by Types of Users (includes Urban and Ag)	X		X	X		X	
Per-Capita Use	X		X	X		X	
Consumptive Use Factors by Crop Type			X	X	X	X	
Water Sources to Meet							

TYPE OF DATA/ DATA SOURCE	Local Water Purveyors	Local Sanitation Agencies	County or City Agencies	State Agencies	Federal Agencies	Groundwater Management Agencies	**Other**: Local Entities, Environmental Organizations*
Demand – by category	X		X	X		X	
Total Demand	X		X	X		X	
Water Costs and Pricing (Including Recycled Wastewater)	X	X		X		X	
Population Forecasts (includes service are population forecasts)	X	X	X	X		X	
Implementation of Best Management Practices - Efficiency	X		X	X	X	X	
Urban Water Management Plans	X			X		X	
Habitat and Environmental Data – Public Trust			X	X	X		X
Land Use Policies and Programs Affecting Water Supply/Use	X		X	X			
Urban Land Uses			X	X			
Agricultural Land Uses			X	X		X	
Climate Data (Includes rainfall)	X		X	X	X		
Emergency Plans	X	X	X	X	X	X	X

"X" Represents Possible Source of Data

Key to Data Sources:

County and City Agencies: Planning departments (City and County), County Assessor's Office, County Environmental Health (EH), County Watershed Protection District (WPD), City utility departments that don't provide water.
*__Environmental Organizations:__ Santa Barbara Channelkeepers/Ventura River Stream Team/Surfrider Foundation, Friends of the Santa Clara River
State Agencies: Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCB), Department of Health Services (DHS), Coastal Conservancy, Department of Finance (DOF), Department of Fish and Game, UC Cooperative Extension, State Park Service
Federal Agencies: Army Corps of Engineers, Bureau of Reclamation (USBR), Geological Survey (USGS), Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), Forest Service (USFS), National Marine Fisheries Service (NMFS), Natural Resources Conservation Service (NRCS), Fish and Wildlife Service (USFWS), National Park Service
Groundwater Management Agencies and Planning Areas: Fox Canyon GMA, Ojai Basin Groundwater Management Agency, Santa Paula Basin Pumpers' Association, AB 3030 planning areas (i.e. Fillmore, Piru).
Other - Resource Conservation District (RCD), Farm Bureau, Nature Conservancy (TNC), Trust for Public Land (TPL)

APPENDIX F

Annotated Reference List of Existing Local Plans and Reports

VENTURA RIVER WATERSHED

California Regional Water Quality Control Board- Los Angeles Region. *State of the Watershed- Report on Surface Water Quality of the Ventura River Watershed*. May 2002.

This report discusses the state of the Ventura River Watershed, including current water quality impairments to the watershed. The board recommends general improvements in the various agency monitoring programs, specifically in communication, because certain areas of the watershed are severely under monitored. The Board also suggests that more sampling for bacterial indicators and conventional water quality parameters.

Casitas Municipal Water District. *Water Supply and Use Status Report*. December 7, 2004.

This report discusses the status of water supply and use for the Casitas Municipal Water District. Specifically, the study evaluates the potential impact of the Robles BO operating criteria and removal of the Matilija Dam on the Casitas Water Supply. In determining the impacts to the Casitas water supply, hydrology information from the 1945 to 19665 critical drought period, and information from 1966 through 1980 reservoir recovery period were used. The studied determined that water use would continue to exceed water supply. While collecting the data for the reservoir model, staff noted that there may be a variation in water supply depending on storm events in the area. Therefore, the study recommends that Casitas should actively develop and pursue a water conservation management program and while developing and implementing a strategy to secure alternative water supplies.

City of San Buenaventura. *Water System Operational Evaluation and Improvement Program – Final Report*. Prepared by Boyle Engineering Corporation. June 1993.

The report provided a detailed analysis of the City's existing water system In relation to present and future capacity needs. Three water system alternatives were proposed: the Stand-Alone State Water Project, Seawater Desalination 8500, and the Seawater Desalination 1500. The Stand-Alone State Water Project proved to be the most viable alternative, as it had the lowest overall cost and ranks highest relative to non-economic criteria.

City of San Buenaventura. *2004 Biennial Water Supply Report*. September 2004.

The City's Comprehensive Water Resources Management Plan (adopted 1994) includes a water supply monitoring requirement for an annual review of critical water supply conditions and a biennial report to the City Council for certification in the Fall of even numbered years. The purpose of the Biennial Water Supply Report is to certify that the City's existing water supply and planned

improvements are sufficient to satisfy Ventura's needs for at least the next ten years and provide advance warning if a supplemental water supply is needed. The report includes projections of the City's future water supply and demands. The current and projected water supplies used in the report include: (1) production from the Ventura River, (2) supply from Lake Casitas, (3) production from the Mound Groundwater Basin, (4) pumping allocations in the Oxnard Plain Groundwater Basin, (5) pumping allocations in the Santa Paula Groundwater Basin and (6) future Saticoy County Yard Well. The report also summarizes the capital improvement projects planned for the next five years.

City of San Buenaventura. *Master Plan for Reclaimed Water System*. August 1992.

The master plan includes an overview of the City of Ventura's existing recycled water system and an implementation plan for potential expansion alternatives. The master plan recommended several projects that would expand and improve the recycled water system and in turn make better use of the City's recycled water as a resource. The capital costs associated with the implementation of all the recommended improvements were estimated in 1992 to be over $5 million.

City of San Buenaventura. *Ventura Water Renovation Facility Master Plan*. Prepared by Montgomery Watson. September 1993.

The master plan provided an evaluation of the existing reclamation conditions, projects of future plant flows and loadings, and development of a comprehensive plant upgrade/expansion program at the Ventura Water Renovation Facility. In addition, the master plan reviewed the then current regulatory requirements, examined existing facilities, identified interim improvements necessary to provide adequate and reliable treatment of plant flows, developed recommendations to accommodate future treatment demands, and provided a connection fee analysis for the recommended plant upgrade alternative.

Ojai Basin Groundwater Management Agency. *Groundwater Management Plan, Section 701.1.* 1994.

The mission of the Ojai Basin Groundwater Management Agency is to preserve the quantity and quality of groundwater in the Ojai Basin, in order to protect and maintain the areas long term water supply. The Ojai Basin Groundwater Management Plan carries out these objectives in five broad ways. First, the Agency must have a comprehensive understanding of the hydrology of the basin. This is achieved through monitoring water conditions in the basin, data collection of surface water and well water levels, well registration, monitoring and measuring well extraction amounts. The Agency must also control groundwater exportation from the basin; and manage the basin through requiring permits for the protection of the water in and around the basin, establish thresholds and triggers for water in the basin and allow for the transfer of water across basin cells. The Agency must also encourage supporting activities such as: water conservation and identify the number of abandoned wells in the Ojai Basin to determine if they pose any hazard to the groundwater. Finally, the Agency will promote effective communication through an advisory committee and an annual report; and through an effective administration.

Ojai Basin Groundwater Management Agency. *Hydrogeologic Investigation - Ojai Groundwater Basin, Section 602 and 603 Study Tasks.* Prepared by Staal, Gardner, and Dunne, Inc. December 1992.

This document includes hydrogeological information for the Ojai basin. Six main tasks were studied and included in this report: Project Management, Data Collection and Review, Preparation of Water Well Database, Hydrogeologic analysis, Surface Water issues, meetings to report findings and a report discussing the study.

United States Army Corps of Engineers. *Matilija Dam Ecosystem Restoration Feasibility Study, Executive Summary*. September 2004.

The feasibility study focuses on ecosystem restoration in the Ventura River Watershed to benefit native fish and wildlife on the Ventura River and the Matilija Creek, in the vicinity of Matilija Dam. Sedimentation behind the Dam has rapidly reduced the ability to store a significant amount of water for future use. It is estimated that approximately 6 million cubic yards of sediments have accumulated behind the dam. Moreover, discharges into the Ventura River, including point source contributions from a wastewater treatment facility, and Nonpoint source contributions from agricultural and urban development have affected the water quality of the river. The study offers four Alternatives: full dam removal in one phase and mechanical removal of the trapped sediment; full dam removal in one phase and natural (fluvial) transport of a portion of trapped sediment; incremental removal of the dam and natural transport of a portion of trapped sediment.; and full dam removal in one phase and long term storage of a portion of the trapped sediment within the reservoir basin. The feasibility study recommends the removal of Matilija Dam (alternative four), an action that would provide an historic restoration opportunity for the Ventura River ecosystem and steelhead fishery.

Ventura County Watershed Protection District. *Integrated Watershed Protection Plan*. Fiscal Year 2005, Zone 3. November 2004.

This plan prioritizes projects that are of environmental concern in the District, and then allocates anticipated revenues for the project construction over a 20-year planning period. For Zone 3, 85 projects have been identified as needing additional funding and/or study. The total construction cost in 2009 dollars for this project is approximately $241 million. Project categories include: Operation and Maintenance, structural life, and Detention/Debris Basin Retrofit.

SANTA CLARA RIVER WATERSHED

Ventura County Watershed Protection District. *Santa Clara River Enhancement and Management Plan (SCREMP)*. Prepared by AMEC Earth and Environmental. 2004.

This document outlines the overall goals and objectives of SCREMP. The plan provides guidance for the preservation, enhancement, and sustainability of the physical, biological, and economic resources that occur within the 500-year floodplain limits of the Santa Clara River mainstream. The plan includes recommendations regarding: property rights, agricultural land use preservation, flood protection needs, coastal beach erosion and replenishment, and recreation.

Cities of San Buenaventura and Oxnard. *Final Report. West Ventura County Water Reliability Study*. Prepared by Kennedy Jenks Consultants. December 2003.

The report recommends constructing an intertie between Ventura's 430-pressure zone near the City's Saticoy Water Conditioning Facility and the groundwater pipeline to Oxnard's Blending Station No. 4. The recommended intertie would involve construction of a pipeline connecting the

two distribution systems, a pressure-reducing valve and pump station. The pump station and pressure-reducing valve would be located at a centralized control station. The plan identifies several development activities that need to occur and issues needed to be addressed prior to implementation, which include: Additional Feasibility Evaluation, Institutional Agreements, Preliminary Design, Permitting and Design/Construction.

Santa Paula Basin Technical Advisory Committee. *Investigation of Santa Paula Basin* Yield. Prepared by Santa Paula Basin Experts Group. July 2003.

Groundwater pumping averaged approximately 26,000 acre feet annually during the 13-year period extending from 1983 through 1995, with relatively stable or small declines in water levels over the same period. It was concluded that extractions of 26,000 acre feet per year (under existing conditions of development inside and outside the basin) are sustainable. Thus continued pumping at this annual rate should not adversely affect the basin. In addition, if pumping in the basin is increased in the future upward towards the assumed initial yield of 33,500 acre feet, the basin should be monitored carefully to assess the resulting effect in the basin.

United Water Conservation District, City of Fillmore, et al. *AB 3030 Groundwater Management Plan For Piru/Fillmore Basins.* 1996

This plan was prepared pursuant to AB 3030 and is a cooperative effort of the United Water Conservation District, the City of Fillmore, and water companies/pumpers of the Piru/Fillmore groundwater basins. This Plan is a cooperative Management Plan for the basins and outlines the roles of the various parties in implementing the Groundwater Management Program, with United Water Conservation District as the lead agency. The Plan was formulated to ensure local control of groundwater management. The purpose of the Plan is to establish local management, and to ensure that the Piru/Fillmore basins continue to be a reliable and uncontaminated source of groundwater in the future.

CALLEGUAS CREEK WATERSHED

Calleguas Creek Watershed Management Plan Committee. *Calleguas Creek Watershed Management Plan, A Cooperative Strategy for Resource Management and Protection and Integrated Regional Water Management Plan.* June 2005.

This two volume plan includes an overview of the key issues and problems facing the Calleguas Creek Watershed, the action recommendations and implementation structure options for addressing these issues, the results of technical studies conducted regarding identified issues/problems, a description of the comprehensive stakeholder review process, and identification of implementation projects selected for their ability to meet water management strategies and IRWMP objectives and benefits to the watershed.

Calleguas Creek Watershed Management Plan Committee. *Calleguas Creek Watershed Management Plan-Phase 1 Report.* November 10, 2004.

The purpose of this report is to develop a comprehensive plan that would guarantee the long term health of the natural resources in the watershed. Specifically, this report includes two major components that will be integrated into the water management plan. Phase 1 action recommendations include six key areas that the agency is committed to adopting: water resources

and water quality; habitat and recreation; flood protection and sediment management; agriculture; land use, and public outreach and education. Planning tools, such as strategic plans, maps and resource documents have helped the agency evaluate management options and inform public policy and private sector decision making, particularly to: encourage watershed-wide resource management planning; enable watershed-wide public facility planning; coordinate local planning decision through development of common data and model approaches and create cooperative approaches to meet Federal and State laws and regulations.

Calleguas Creek Watershed Management Plan Committee. *Calleguas Creek Watershed Wetland Restoration Plan*. Prepared by David Magney Environmental Consulting. October 2000.

This document provides a discussion and an evaluation of the wetlands in the Calleguas Creek Watershed. The watershed is divided up into 11 groundwater basins, six of which were included in a groundwater basin characterization study. Plant habitats within the watershed include: California Annual Grassland, Needlegrass Grassland, Coastal Sage Scrub, and Riparian Woodland. Recommendations to maintain, restore and manage these wetlands includes: preserving key portions of the upper watershed and the groundwater recharge zones; implement Storm Water Management Plans that will store stormwater in small volumes as near to the source as possible; Manage Stormwater facilities for plant and wildlife habitat; restore and stabilize stream banks; redesign and replace undersized culvert and bridge spans and restore channel-floodplain interactions to ten sites located throughout the middle to lower watershed.

Calleguas Creek Watershed Management Plan Committee. *Calleguas Creek Nutrient Total Maximum Daily Loads*. Prepared by Larry Walker Associates. March 2001.

Thirty separate pollutants have been listed in the Calleguas Creek Watershed. For each of these pollutants, a Total Maximum Daily Load (TMDL) must be developed to result in compliance with water quality standards. This document presents the TMDL's that address five of the 303(d) listings: ammonia; nitrate-N + nitrite-N; nitrogen; algae and low dissolved Oxygen/organic enrichment.

Calleguas Municipal Water District. *Urban Water Management Plan Update, December 2005*.

As required by the California Urban Water Management Planning Act, all retail and wholesale urban water purveyors serving 3,000 customers or providing 3,000 acre feet of water for urban uses, must prepare an urban water management plan (UWMP). These plans must be updated every 5 years. These UWMPs are a planning tool that guides the actions of water management agencies. Included in these plans are information on current and projected water supplies and water needs, water transfers, groundwater management, water use efficiency practices, water recycling, water quality, water shortage contingency planning and water supply reliability. Each of these issues is addressed in the Calleguas UWMP Update.

City of Camarillo *Water System Plan Update*. Prepared by Parsons Engineering Science. December 1999.

The Master plan provided an evaluation of existing water system needs and improvements through the year 2010. Specifically the plan addresses future growth and population projections, future

water demands, water quality issues, availability and quality of water sources, future regulatory trends, modeling and analysis of existing water system, and recommendations for water system improvements to meet future needs. The plan recommended further investigation to verify flow conditions and zone pressures, implementation of a quarterly sampling program to test for arsenic in each well.

Ventura County Watershed Protection District. *Integrated Watershed Protection Plan*. Fiscal Year 2005, Zone 3 (Calleguas Creek Watershed). November, 2004.

The Integrated Watershed Protection Plan (IWPP) for the Calleguas Creek Watershed is the culmination of long-range planning efforts to provide a systematic process for inclusion of projects in the Watershed Protection District's 5-Year Capital Improvement Plan and to improve the long-range Watershed Protection District's planning process for the 20 year period subsequent to the Capital Improvement Plan. The IWPP contains a plan for implementing a prioritized list of projects which have been proposed to address existing flooding, operations and maintenance, drainage facility deficiency, access or environmental concerns.

Miscellaneous

California Regional Water Quality Control Board, Los Angeles Region. *Water Quality Control Plan for the Los Angeles Region*. November 17, 1994.

This document includes information on the following: Beneficial Uses for specific water bodies; Water Quality Objectives, including regional objectives for inland surface waters; regional narrative objectives for wetlands, and regional objectives for groundwater. Strategic Planning and Implementation information includes control of Point Source Pollutants, control of Nonpoint source Pollutants and Remediation of Pollution.

California Regional Water Quality Control Board- Los Angeles Region. *Watershed Management Initiative*, October 2004.

This document addresses water quality within watersheds in the LA Region. To protect water resources within a watershed context, a mix of point and Nonpoint source discharges, ground and surface water interactions, and water quality/water quantity relationships must be considered. These complex relationships present considerable challenges to water resource protection programs. The State and Regional Boards are responding to these challenges with the Watershed Management Initiative (WMI). The WMI is designed to integrate various surface and groundwater regulatory programs while promoting cooperative, collaborative efforts within a watershed. It is also designed to focus limited resources on key issues and use sound science.

Larry Walker and Associates, ***Notice of Intent (NOI) to Comply with Los Angeles County Regional Water Quality Control Board Conditional Ag Waiver***, Prepared on behalf of the Ventura County Agriculture Irrigated Lands Group, **August 2006**

This document was prepared for submittal to the Regional Water Quality Control Board in compliance with the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* (Order No. R4-2005-0080), which was adopted by the Los Angeles Regional Water Quality Control Board on November 3, 2005. The Ventura County Agriculture Irrigated Lands Group (VCAILG) was formed in 2006 to act as one unified "Discharger Group" in Ventura County for the purpose of compliance with this order. The goal of the Conditional Ag Waiver is to

improve and protect water quality and attain water quality objectives in waters of the State by providing a program to manage discharges from irrigated lands that cause or contribute to conditions of pollution or nuisance, or that cause or contribute to exceedances of applicable water quality objectives.

Ventura County. Ventura Countywide Stormwater Quality Management Program Report. *Stormwater Quality Management Plan*. November 2001.

The Ventura County Stormwater Quality Management Plan (VCSQMP), represents and defines the requirements of the Ventura County Municipal Storm Water National Pollutant Discharge Elimination System The plan is intended to develop, achieve and implement a comprehensive and cost effective stormwater pollution control program to reduce pollutants to the maximum extent practicable. The VCSQMP allows for the discharge of stormwater and urban runoff from municipal storm drain systems with the urban area of Ventura County.

Environmental Now/Southern California Wetlands Recovery Project. *Watershed Management Plan Characterization Report for Coastal Southern California*. November 2002.

This report characterizes watershed planning efforts in coastal Southern California, through characterizing watershed planning documents and analyzes existing watershed plans from Point Conception to the Mexican Border. Ventura County has nine water bodies, of which four are large and regionally significant: Ventura River, Santa Clara River, Calleguas Creek and Ormond Beach/Mugu Lagoon Wetlands. These larger water bodies have been focused on the most. Calleguas Creek began planning efforts to study and preserve the watershed in 1996, and is currently working along with other State agencies to develop and implement a comprehensive watershed management plan. Steelhead recovery and beach nourishment have been the focus of watershed planning and preservation along the Ventura River. Another important issue included in this area, is the removal of Matilija Dam. The Santa Clara River is the most natural river remaining in the Region and is the home of many rare species, including the California Condor. Mugu Lagoon lies on the Pt. Mugu Naval base. The planning that has occurred has largely focused on protecting endangered species. Ormond Beach, on the other hand, has been the focus of the public for twenty years.

Fox Canyon Groundwater Management Agency. *Groundwater Management Plan – Draft Update*. January October 2006.

The objective of this draft update focuses on maximizing the available sources of supply. The revised plan deals directly with the supply of groundwater available, and the demands placed on the groundwater. The plan delineates new alternatives for management protection for all groundwater in the basins located within the Agency boundary.

California, State Water Resources Control Board and California Environmental Protection Agency. *Water Quality Control Plan for Ocean Waters of California*. 2001.

The Ocean Plan outlines the general protections that are required by the State of California Water Code, regarding the discharge of waste to the ocean waters. The plan includes levels of water quality characteristics for ocean waters. These levels include: bacterial characteristics, Shellfish

harvesting standards, physical characteristics and chemical characteristics. Proposed amendments to the 2001 Ocean Plan included the following: replacement of acute toxicity effluent limitation with an acute toxicity water quality objective, revision of chemical water quality objectives for protection of human health; addition of provisions for compliance determination for chemical water quality objectives; revisions of the format and organization of the Ocean Plan' development of special protection for water quality and designated uses specifying procedures for nomination and designation of special category waters. All of these amendments were approved by the State Water Resources Control Board.

Ventura County, Watershed Protection District. *Flood Mitigation Plan for Ventura County, California*. Prepared by URS Corporation. November 2004.

This draft report provides an assessment of potential and current flooding risks in Ventura County, and the administrative, technical, legal, and fiscal capabilities that allows the District to achieve its goals through the flood hazard mitigation planning process. The goals of this mitigation strategy are as follows: Build and support local capacity, commitment and resources to become less vulnerable to flood hazards; promote public understanding, support and demand for flood hazard mitigation; reduce possibility of damage and losses to assets, particularly people, critical facilities, and District-owned facilities due to the floods and; reduce possibility of damage and losses to assets, particularly people, critical facilities, and District-owned facilities due to dam failure.

Ventura County Watershed Protection District. *Ventura Countywide Stormwater Quality Management Program: Annual Report for Permit Year 4, Reporting Year 10*. October 2004.

This plan is the 2004 annual update to the Storm Water Quality Management Plan for the 2003-2004 year. The plan accomplished the following: Stormwater budgets were identified for the following reporting year; Municipal staff were trained in applicable stormwater management program areas to increase awareness about stormwater quality management and program requirements; permit required activities were implemented; Volunteers were recruited to help improve water quality throughout Ventura County and applicable communities (including residents, businesses, land developers and contractors) were targeted for educational outreach on stormwater quality management and program requirements.

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Calleguas Creek Watershed

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
Concept Projects						
Unknown	Desal Brine Pollutant Removal, Biodiesel, Food & Habitat Production		√			
Wetlands Recovery Project	Lower Conejo Creek Acquisition				√	
Triunfo Sanitation District	Malibu and Calleguas Creek Imported Water Distributed Harvesting	√	√			
United Water Conservation District	Pilot Injection into the Lower Aquifer near Hueneme Road	√				
United Water Conservation District	Pumping Trough Pipeline Extension	√				
City of Oxnard	Seawater Intrusion Barrier ASR Wells, Phase I		√			
Proposed Projects						
Ventura County Watershed Protection Dist	Arroyo Simi Channel Improvements			√		
Ventura County Watershed Protection Dist	Arroyo Simi Channel Improvements Los Angeles Ave. Collins Dr.			√		
Ventura County Resource Conservation Dist	Callegaus Creek Watershed Arundo/Tamarisk Programmatic EIR/EA, Permits and Pilot Removal Project				√	
Calleguas Municipal Water District	Calleguas Regional Salinity Management Project, Hueneme Outfall Rehabilitation (Brine Line)		√			
City of Camarillo	Camarillo Groundwater Treatment Facility	√	√			
City of Camarillo	Camarillo Heights Drainage Improvements			√		
Ventura County Watershed Protection Dist	Camarillo Hills Drain			√		
Camarillo Sanitary District	Camarillo Recycled Water Pipeline to Camrosa	√	√			
Santa Monica Mountains RCA	Conejo Creek North Fork - Wildwood Park Water Management Enhancement Project	√			√	
City of Camarillo	Construct 2 distribution System Booster Stations in the City's 420 and 445 A Pressure Zones	√				
V.C. Waterworks District No. 1 - Moorpark	Construct Home Acres (757) Reservoir	√				
V.C. Waterworks District No. 1 - Moorpark	Design Home Acres (757) Reservoir (VCWWD 1)	√				
City of Camarillo	Drainage Improvements on Germain, Dewayne and Pleasant Valley Rd.			√		
City of Camarillo	Drainage Improvements on Lewis Rd., Barry St. and Merrit Ave.			√		
Ventura County Watershed Protection Dist	Dry Canyon Flood Protection - L.A. Avenueto Arroyo Simi Confluence			√		
City of Camarillo	Dry Weather Diversion Project	√				
V.C. Waterworks District No. 1 - Moorpark	Expansion of MWTP Tertiary Treatment Plant		√			
V.C. Waterworks District No. 19 - Somis	Infrastructure Improvement Plan					
City of Simi Valley	Lagoon Lining/Groundwater Protection	√				
Ventura County Watershed Protection Dist	Las Posas Sub-Surface Mapping	√				
City of Port Hueneme	Meter Retrofit	√				
City of Thousand Oaks	Mount Clef Open Space Purchase				√	√

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Calleguas Creek Watershed

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
Wetlands Recovery Project	Ormond Beach Wetlands Acquisition, Part 2				√	
Wetlands Recovery Project	Ormond Beach Wetlands Restoration Plan				√	
City of Simi Valley	Pilot Study - Retrofit of the City' Catch Basins to Storm Water Treatment Catch Basins			√		
Ventura County Watershed Protection Dist	Pleasant Valley Groundwater Recovery Project	√				
V.C. Waterworks District No. 1 - Moorpark	Reclaimed Water Reservoir	√	√			
Camarillo Sanitary District	Renewable Water Resource Management Program for the Southern Reaches of Calleguas Creek Watershed	√	√			
City of Thousand Oaks	Renewable Water Resource Management Program for the Southern Reaches of Calleguas Creek Watershed	√	√			
Camrosa Water District	Renewable Water Resource Management Program for the Southern Reaches of Calleguas Creek Watershed	√	√			
V.C. WW District No. 8 - City of Simi Valley	Simi Valley Regional Recycled Water System	√	√			
V.C. WW District No. 8 - City of Simi Valley	Simi Valley Tapo Canyon Water Treatment Plant (TCWTP)		√			
City of Thousand Oaks	Site 1 Open Space Purchase				√	√
City of Simi Valley	Site-Specific Objectives for Chlorides and TDS for the Southern Reaches of Arroyo Simi and Arroyo Las Posas		√			
Calleguas Municipal Water District	Somis Desalter		√			
Calleguas Municipal Water District	South Las Posas Desalter		√			
Ventura County Watershed Protection Dist	South Oxnard Plain Groundwater Recovery Project	√				
City of Camarillo	Storm Drain Line Inspection			√		
Ventura County Watershed Protection Dist	Tapo Detention Basin			√		
City of Camarillo	Urban Pesticide Education and Buyback Program		√			
City of Thousand Oaks	Vallecito Open Space Purchase				√	√
V.C. Waterworks District No. 1 - Moorpark	VCWWD1 Recycled Water System Phase II - VCWWD1 Recycled Project	√	√			
Camarillo Utility Enterprise	Well No. 2 Wellhead Treatment and Connection to Brine Line		√			
V.C. Waterworks District No. 1 - Moorpark	Well No. 20, 95 or 98 Water Treatment Facility	√	√			
V.C. Waterworks District No. 19 - Somis	Well No. 4 Construction	√				
V.C. Waterworks District No. 19 - Somis	Well No. 4 Treatment Facility	√	√			
City of Camarillo	Wesr Camarillo CFD Storm Drain F-500-2, Central Ave			√		
Ventura County Watershed Protection Dist	West Las Posas Aquafer Recovery Project	√				
V.C. WW District No. 8 - City of Simi Valley	West Simi Desalter		√			

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Santa Clara River Watershed [1]

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
Concept Projects						
City of Oxnard - Public Works	Advanced Water Purification Facility(APWF), Phase 1	√	√			
Santa Clara River Watershed Committee	Consider Formal, Ongoing Watershed Committee Staffing					√
Santa Clara River Watershed Committee	Coordinated Salinity Management Project Through to the Ocean		√			
Santa Clara River Watershed Committee	Coordinated, Inter-jurisdictional Groundwater Management Program	√				
Santa Clara River Watershed Committee	Coordinated, Inter-jurisdictional Sediment Management Project		√			
Unknown	Desal Brine Pollutant Removal, Biodiesel, Food & Habitat Production		√			
Santa Clara River Watershed Committee	Develop Plan Describing Recreational Access Facilities and Opportunities for Watershed Recreation					√
Santa Clara River Watershed Committee	Develop Watershed Protection Plan		√	√	√	√
United Water Conservation District	Freeman Enhancement Project - Phase 1	√				
United Water Conservation District	Habitat Conservation Plan for Steelhead in the Santa Clara River Watershed				√	
Wetlands Recovery Project	Hedrick Ranch Nature Area Restoration Project				√	
United Water Conservation District	Pilot Injection into the Lower Aquifer near Hueneme Road	√				
United Water Conservation District	Pumping Trough Pipeline Extension	√				
City of Oxnard - Public Works	Recycled Water Backbone-Hueneme Transmission East, Phase 1	√	√			
City of Oxnard - Public Works	Recycled Water Backbone-Hueneme Transmission West 1	√	√			
City of Oxnard - Public Works	Recycled Water Backbone-Ventura Transmission West 1	√	√			
Santa Clara River Watershed Committee	Regional Permitting Project for all Conservation Plans and Streambed Protection Projects				√	
Santa Clara River Watershed Committee	Regional Protection and Restoration of Fish and Wildlife Migration Corridors				√	
United Water Conservation District	Remote Monitoring of Santa Felicia Dam			√		
Ventura County Watershed Protection Dist	Santa Clara Pipeline					
Crimson Pipeline, LP	Santa Clara River Brine Water Disposal Pipeline System		√			
Wetlands Recovery Project	Santa Clara River Parkway Acquisitions				√	√
City of Oxnard	Seawater Intrusion Barrier ASR Wells, Phase I		√			
Santa Clara River Watershed Committee	Source Control of Salinity		√			
United Water Conservation District	Steelhead Recovery Program				√	

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Santa Clara River Watershed [1]

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
United Water Conservation District	Supplemental State Water Importation Project	√				
Santa Clara River Watershed Committee	Watershed-wide Arundo Management Plan/Project				√	
Santa Clara River Watershed Committee	Watershed-wide Floodplain Restoration – River Parkway Project			√		
Proposed Projects						
City of Santa Paula	200 Zone New Reservoir #2	√				
City of Santa Paula	400 Zone #2/600 Zone #1 Pump Booster Station	√				
City of Santa Paula	400 Zone Booster #3	√		√		
City of Santa Paula	400 Zone New Reservoir #2	√				
City of Santa Paula	Acquisition of Middle Road Mutual Water Company Pipeline System	√				
City of Santa Paula	Atmore Drive (Debris Basin to Atmore Drive at Santa Paula St.)			√		
Ventura County Watershed Protection Dist	Brown Barranca Channel Improvements			√		
City of Fillmore	Central Ave. Storm Drain Project			√		
Fillmore Irrigation Company	Conjunctive Use Irrigation Well	√				
Ventura County Waterworks Districts Admin.	El Rio Forebay Groundwater Contaminant Elimination Project		√			
County Sanitation Districts of L.A. County	Environmental Restoration Feasibility Study		√		√	
County Sanitation Districts of L.A. County	Expansion of Water Recycling Facilities	√	√			
City of Fillmore - Public Works	Fillmore Integrated Water Recycling and Wetlands Project	√			√	
City of Santa Paula	Foothill Rd. (Ridgecrest Drive to Peck Rd.)			√		
United Water Conservation District	Freeman Expansion Project	√				
City of Santa Paula	Fuschia Tank Drain Improvements			√		
City of San Buenaventura	Harbor Blvd. and Navigator Dr. Drain Improvement			√		
City of Santa Paula	Harvard Blvd. at Isbell Middle School			√		
Watershed Protection Dist	Lake Canyon Detention Basin			√		
City of San Buenaventura	Moreland Ditch Flood Prevention			√		
City of Oxnard - Public Works	Oxnard Forebay Groundwater Contaminant Elimation Project		√			
Ventura County Watershed Protection Dist	Oxnard Industrial/Hueneme/J Street Drainage Improvement			√		
City of Santa Paula	Park Street Pump Installation					

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Santa Clara River Watershed [1]

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
County Sanitation Districts of L.A. County	Perchlorate Characterization Study		√			
United Water Conservation District	Piru Diversion Upgrade - Phases 1 and 2				√	
V.C. Waterworks District No. 16 - Piru	Piru Wastewater Treatment Plant Upgrade/Contaminant Elimination		√			
Watershed Protection Dist	Prince Barranca Detention Basin and Channel Improvements			√		
County Sanitation Districts of L.A. County	Public Outreach/Education					√
Saticoy Sanitary District	Regional Salt Reduction and Recharge	√	√			
Ventura County Watershed Protection Dist	Santa Clara Groin Upgrade			√		
The Nature Conservancy	Santa Clara Habitat Restoration, Water Quality Improvement & Flooplain Expansion	√	√	√	√	
The Nature Conservancy	Santa Clara Levee Modification			√		
City of Fillmore	Santa Clara Valley Brine Line		√			
Ventura County Watershed Protection Dist	Santa Clara Yield Study	√				
City of San Buenaventura	Saticoy Ave. N/O Blackburn Drain Improvement			√		
City of Santa Paula	Stekel Well Field to 200 Zone Reservoir Transmission Pipeline	√				
City of Fillmore	Stormwater Discharge Treatment Facilities		√	√		
Saticoy Sanitary District	Ventura-Saticoy Instant New Water	√				
City of Santa Paula	Water Recycling Facility	√	√			
City of Santa Paula - Public Works	Water Recycling Facility - Santa Paula	√	√			
City of Santa Paula	Water Softening Facility		√			
County Sanitation Districts of L.A. County	Water Supply Chloride Contribution Study		√			
Ventura County Planning Dept (RMA)	Watercourse Setback Ordinance	√		√	√	
City of Santa Paula	Well #15 Site Study	√				
County Sanitation Districts of L.A. County	Well-head Water Softening Project	√	√			
City of Santa Paula	West Santa Paula St. from Hardison to Atmore CMP Drain			√		
City of San Buenaventura	West Ventura County Water Supply Reliability	√				
City of Oxnard	West Ventura County Water Supply Reliability	√				

Note 1: All projects located in Ventura County. Los Angeles County Projects within the Santa Clara River Watershed have not been included.

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Ventura River Watershed

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
Concept Projects						
Ventura River Watershed Committee	Additional Land Acquisition and Easements for Ventura River Parkway		√		√	√
Ventura River Watershed Committee	Create an Arundo Removal Master Plan and Demonstration/pilot Project				√	
Ventura River Watershed Committee	Create Mechanism for Ongoing Coord. of Watershed Protection Plan with IWPP for Zone 1		√	√	√	√
Ventura River Watershed Committee	Develop an EIR for an Ordinance for Arundo-Weed Abatement				√	
Ventura River Watershed Committee	Fill Data Gaps for Southern Steelhead Life Cycles				√	
Ventura River Watershed Committee	Form an Assessment District to Fund Arundo Removal				√	
Ventura River Watershed Committee	Land Acquisition, Recreation and Education/Outreach for Ventura Hillsides					√
Wetlands Recovery Project	Matilija Dam Removal Engineering and Design				√	
Ventura River Watershed Committee	Mitigation Banking Program for Entire Watershed					
Ventura River Watershed Committee	Prepare Inventory of Estuaries with Assessment and Monitoring – at 5 Points Along the Watershed				√	
Ventura River Watershed Committee	Recreational Trails and Environmental Education on Ventura River Parkway					√
Ventura River Watershed Committee	Restoration for Ventura River Parkway				√	√
Ventura River Watershed Committee	Restoration of Areas near Ventura River Mouth (Near Surfer's Point)				√	
Ventura River Watershed Committee	Restore the "2nd Mouth" of the River				√	
Ventura River Watershed Committee	Restore Tributaries to Ventura River				√	
Ventura River Watershed Committee	Restore Wetlands in the Coastal Drainages				√	
Ventura River Watershed Committee	Rice Creek Realignment and Restoration			√		
Wetlands Recovery Project	Ventura River Arundo Removal Project				√	
Trust for Public Land	Ventura River Parkway		√	√	√	√
U. C. Cooperative Extention	Watershed University Program for Ventura River Watershed					√
Proposed Projects						
Ojai Valley Sanitary District	Arbolada Sewer System		√			
City of San Buenaventura	Casitas Conduit					
Casitas Municipal Water District	Casitas MWD Agricultural Assistance Project	√				√
Casitas Municipal Water District	Casitas MWD Interpretive Center					√
Casitas Municipal Water District	Casitas MWD Sewer Hook-up		√			
Casitas Municipal Water District	Casitas MWD Treatment Plant		√			
Ojai Valley Sanitary District	Casitas Springs Sewer System		√			
City of San Buenaventura	Construction of Beach Water Quality Improvements		√			√
City of San Buenaventura	Corregated Metal Pipe and Drainage Infrastructure Replacement			√		
Ventura County Watershed Protection Dist	Dent Canyon Debris Basin Retrofit			√		
Ojai Basin GMA	Depth-Discrete Monitoring Well Construction		√			

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Ventura River Watershed

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
City of San Buenaventura	Fish-Friendly Water Diversion Facilities				√	
Ventura County Parks Department (GSA)	Foster Park Habitat Conservation/Restoration				√	
City of San Buenaventura	James Drive Storm Drain Construction			√		
City of San Buenaventura	Kalorama St. at Church St. Storm Drain Replacement Phase I			√		
City of San Buenaventura	Kalorama St. at Church St. Storm Drain Replacement Phase II			√		
Ojai Valley Sanitary District	Live Oak Acres Sewer System		√			
City of San Buenaventura	Loma Vista 210/430 Tie In	√				
Ojai Valley Sanitary District	Los Encinos Sewer System		√			
Trust for Public Land	Lower Ventura River Habitat Restoration and Enhancement		√	√	√	√
Ojai Valley Sanitary District	Meiners Oaks Trunk Sewer Removal		√			
City of San Buenaventura	New Tank Arroyo Verde	√				
Ojai Valley Sanitary District	Oak View Trunk Sewer Siphon		√			
Ventura County Watershed Protection Dist	Ojai Basin Safe Yield Study	√				
Ojai Valley Land Conservancy	Ojai Meadows Preserve Habitat Restoration and Flood Control Plan			√	√	
Ojai Valley Land Conservancy	Ojai Meadows-related to Ventura River Trunk Sewer Relocation		√		√	
Ojai Valley Sanitary District	Ojai Trunk Sewer Relocation		√			
City of San Buenaventura	Palm St. at Main St. Drainage Improvements			√		
City of San Buenaventura	Reuse of Ojai Valley Sanitary District Effluent	√	√			
Ventura County Parks Department (GSA)	San Antonio Creek Restoration Project			√		
Ojai Basin GMA	San Antonio Spreading Grounds Rehabilitation	√	√			
Ojai Valley Sanitary District	San Antonio Trunk Sewer Relocation		√			
Ojai Valley Sanitary District	Santa Ana Trunk Sewer Siphon		√			
Watershed Protection District	Senior Canyon Detention Basin			√		
Casitas Municipal Water District	Senior Canyon Water Company Automation Upgrades Project	√				
Ojai Valley Sanitary District	Siete RoblesSewer System		√			
Casitas Municipal Water District	Steelhead Enhancement Project				√	
City of San Buenaventura	Surfers Point Managed Retreat Project					√
City of San Buenaventura	Tertiary Filter Replacement	√	√			
Ojai Valley Sanitary District	Upper Foothill Sewer System		√			
Ojai Valley Sanitary District	Upper Signal Sewer System		√			
Ventura County Watershed Protection Dist	Upper Thacher Creek Improvements			√		
Trust for Public Land	Ventura Coastal Watershed Acquisition		√	√	√	√
City of San Buenaventura	Ventura Coastal Watershed Acquisition		√	√	√	√

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Ventura River Watershed

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
Ventura County Watershed Protection Dist	Ventura Coastal Watershed Acquisition		√	√	√	√
Ojai Valley Sanitary District	Ventura River Sewer Trunk Relocation		√			
Ventura County Watershed Protection Dist	Ventura River Water Demand and Supply Study	√				
Ventura County Watershed Protection Dist	Ventura River Watershed Protection Plan		√	√	√	√
Ojai Valley Sanitary District	Ventura River/Meiners Oaks Sewer Trunk Relocation		√			
Ventura Hillsides Conservancy	Ventura Streams Baseline Assessment and Habitat Enhancement Evaluation Phase 1 & 2				√	
City of San Buenaventura	Vince St. and Lewis St. Debris Basins			√		

Appendix G - IRWMP Proposed Projects and Project Concepts for Future Consideration - Countywide Projects

Org Name	Project Title	IRWMP Objectives				
		Reduce dependence on IW	Protect & Improve WQ	Protect from Flooding	Protect/Restore Habitat	Provide Rec, Access, Edu
Concept Projects						
Santa Clara River Watershed Committee	Identify and Implement Non-structural Flood Control Solutions (e.g., Flood Easements)			√		
Santa Clara River Watershed Committee	Joint Land Use Planning (Flood and Habitat) Between Cities and County			√	√	
Unknown	Regional Habitat & Agriculture Mitigation Bank				√	
Ventura County Resource Conservation District	Ventura County Weed Management Area Invasive Plant Mapping Inventory				√	
Proposed Projects						
The Nature Conservancy	Water Conservation Study	√				
Ventura County Watershed Protection District	Sustainable Landscaping for Professional Gardeners	√	√			
Ventura County Watershed Protection District	Study to Identify Collaborative Multidiciplinary Project Opportunities					
The Nature Conservancy	Santa Clara Floodway Property Acquisition			√		
Ventura County Watershed Protection District	Pathogen Source Monitoring, Identification, and Elimination - District Wide		√			
The Nature Conservancy	Non-Point Source Pollution (NPSP) Agriculture Runoff Management		√			
Ventura County Envr/Energy Resources Division (PWA)	In-Vessel Composting System for Organic Wastes		√		√	
Ventura County Envr/Energy Resources Division (PWA)	Disposal Program for Household Hazardous Waste Materials…		√			
Watershed Protection District	Barlow Barranca Debris and Detention Basin			√		
Watershed Protection District	Barlow Barranca Bypass and CMPA Modification			√		

WCVC Stakeholders

General Purpose Agencies
City of Camarillo
City of Fillmore
City of Ojai
City of Oxnard
City of Port Hueneme
City of Santa Paula
City of Simi Valley
City of Thousand Oaks
City of Ventura
Ventura County Executive Office
Ventura County General Services Agency
Ventura County Resource Management Agency

Water Suppliers/Wastewater Management/ Special Districts
Calleguas Municipal Water District
Camarillo Sanitary District
Camrosa Water District
Casitas Municipal Water District
Fillmore Irrigation Company
Fox Canyon Groundwater Management Agency
Golden State Water Company
Ojai Basin Groundwater Management Agency
Ojai Valley Sanitary District
Ojai Valley Water Conservation District
Pleasant Valley County Water District
Saticoy Sanitary District
Triunfo Sanitation District
United Water Conservation District
Ventura County Watershed Protection District
Ventura County Waterworks Districts
Ventura Regional Sanitation District
Zone Mutual Water Company

Business Organizations
Building Industry Association
Farm Bureau of Ventura County
Ventura County Economic Development Association

Recreational and Open Space Entities
California Department of Parks and Recreation
Conejo Recreation and Park District
Pleasant Valley Recreation and Park District
Rancho Simi Recreation and Park District
Santa Monica Mountains Recreation & Conservation Authority

Regulatory Agencies
California Coastal Commission
California Department of Fish and Game
Los Angeles Regional Water Quality Control Board
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service

Other Agencies/Organizations
Association of Water Agencies of Ventura County
California Coastal Conservancy
California Department of Transportation
California Department of Water Resources
California Native Plant Society
California Wildlife Conservation Board
Environmental Defense Center
Friends of the Santa Clara River
Hansen Trust
Matilija Coalition
Natural Resources Conservation Service
Nature Conservancy
Ojai Valley Land Conservancy
Point Mugu Naval Base
Santa Monica Mountains Conservancy
Surfrider Foundation
Trust for Public Land
U.S. Forest Service
Ventura County Resource Conservation District
Ventura Hillsides Conservancy
Wetlands Recovery Project

WCVC Plan Objectives include:

- ***Reduce dependence on imported water and protect, conserve and augment water supplies***
- ***Protect and improve water quality***
- ***Protect people, property and the environment from adverse flooding impacts***
- ***Protect and restore habitat and ecosystems in watersheds***
- ***Provide water-related recreational, public access and educational opportunities***

Benefits of Plan Adoption

- ***Ensures multi-agency participation in current and future water management planning efforts***
- ***Encourages the participation of non-governmental organizations in the development of a roadmap for both water management and watershed restoration in the region***
- ***Guarantees equity across all watersheds—large and small—in Ventura County***
- ***Signals your agency's leadership role in seeking solutions to water-related issues facing the region***
- ***Meets the requirements of Proposition 50, Chapter 8, Integrated Regional Water Management Planning***
- ***Assures future funding opportunities for the region***
- ***Engages the community in current and future water management planning efforts***
- ***Continues the long history of regional cooperation between agencies and organizations in Ventura County to address our water resources issues***

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Volume 1, Issue 1

Watersheds Coalition of Ventura County

Promoting & Implementing Integrated Regional Water Management Planning

September 2006

Inside this issue:

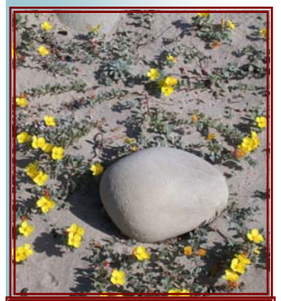


Photo Courtesy of Trust for Public Land

Schedule at a Glance:

August - October 2006
Presentations of IRWMP

October - November 2006
Adoption of IRWMP

November 2006
Draft Funding List Announced

January 1, 2007
Final Adoption Required

Visit us on the web at www.watershedscoalition.org

Integrated Regional Water Management Planning in Ventura County

Early in 2002, in anticipation of the approval of a statewide water bond with grant funds for Integrated Regional Water Management, a "coalition" of water-related agencies in Ventura County began to meet and identify priority projects for these grant funds that would address key water problems facing the county.

This coalition, known as the Ventura Countywide Integrated Regional Water Management Plan (IRWMP) Group, consisting of 20-plus agencies, was formed to address water supply, water quality, environmental and habitat protection, and flood control and stormwater issues in the Ventura and Santa Clara River Watersheds. The Calleguas Creek Steering Committee, consisting of a broad coalition of stakeholders, was formed in 1996 to develop a management plan for the Calleguas Creek Watershed, and on June 15, 2005 the Calleguas Creek Steering Committee successfully adopted the Calleguas Creek Watershed Management Plan.

In July 2005, the Ventura Countywide IRWMP Group and the Calleguas Creek Steering Committee each submitted an application for a Proposition 50, Chapter 8 IRWMP Step 1 grant. Subsequently, the Department of Water Resources – as one of the agencies authorized to oversee Proposition 50 grants – requested the voluntary consolidation of IRWM planning efforts among regions throughout California. In response to this request, in the fall of 2005, the Calleguas Creek Steering Committee and the Ventura Countywide IRWMP Group agreed to consolidate the two IRWM Plans into one planning region and submit a single application for Step 2 grant funding.

This newly formed group, known as the Watersheds Coalition of Ventura County (WCVC), applied for a $25 million Step 2 grant and is currently overseeing the preparation of a single IRWMP encompassing the three main watersheds in Ventura County. Through the WCVC, local agencies continue to work together, in conjunction with State and Federal regulatory agencies, to identify water-related issues facing the region and to seek solutions.

Planning with a Purpose

The purpose of the Watersheds Coalition of Ventura County Integrated Regional Water Management Group is to integrate planning and implementation efforts and facilitate regional cooperation, with the goal of improving water supply reliability, water recycling, water conservation, recreation and access, wetlands enhancement and creation, and environmental and habitat protection.
Specifically, the Plan will provide ongoing guidance and prioritization regarding implementation projects for both Proposition 50 Implementation grants and future funding sources.

An objective of the Plan is to develop a countywide integrated water management plan that addresses all watersheds—large and small—in Ventura County and to coordinate efforts with adjacent regions that share our watersheds.
The Group's objective is to better integrate planning efforts and utilize the findings of existing plans, which will allow us to submit funding requests for priority projects.

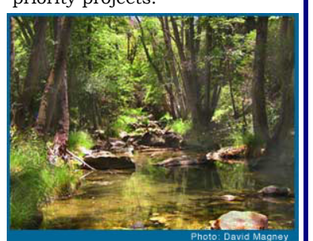
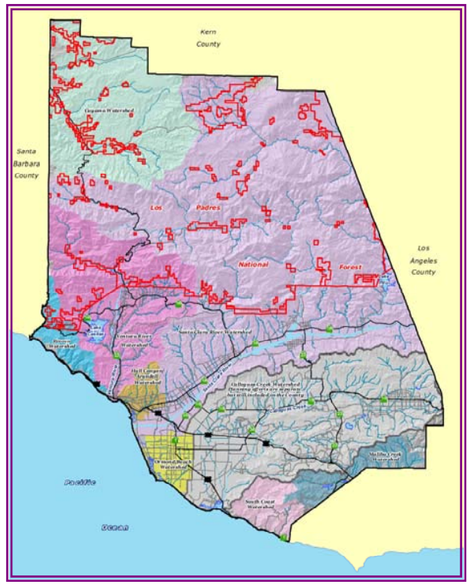


Photo: David Magney



The Watersheds of Ventura County

Ventura County is located north and west of Los Angeles County, east of Santa Barbara County, and south of Kern County. The county covers 1,873 square miles, with 43 miles of coastline, 3 major watersheds, 6 smaller watersheds, and 26 groundwater basins.

Virtually the entire north half of the county is within the Los Padres National Forest.

With more than 800,000 people, Ventura County is currently the 12th most populous county in the state of California and home to 10 cities, 3 wholesale water agencies, 170 retail water purveyors, 5 sanitary districts, 2 groundwater management agencies, and a watershed protection district.

Ventura River Watershed

The Ventura River Watershed encompasses 225 square miles and is the rainiest watershed in Ventura County, receiving as much as 24 inches of rain in a 24-hour period.

With its headwaters originating within the Los Padres National Forest, the river flows approximately 32 miles through the cities of Ojai and Ventura before reaching the Pacific Ocean at Surfers' Point.

This self-sufficient watershed imports no outside water and is home to 75,000 people.

Currently under design are plans to remove Matilija Dam, a 198-high concrete arch dam, located approximately 16 miles upstream of Surfers' Point. Once intended to provide a local water supply, while offering flood protection for downstream communities, the build-up of sediment behind the dam wall has undermined both of those original functions.

The Ventura River is home to 26 special status species, including the endangered steelhead trout..

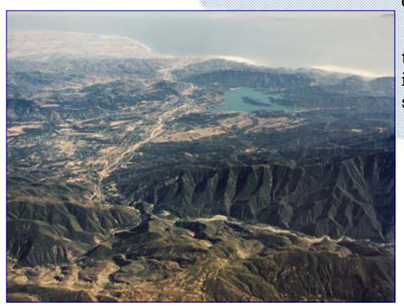
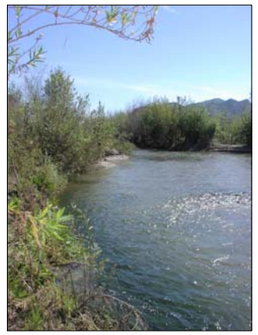
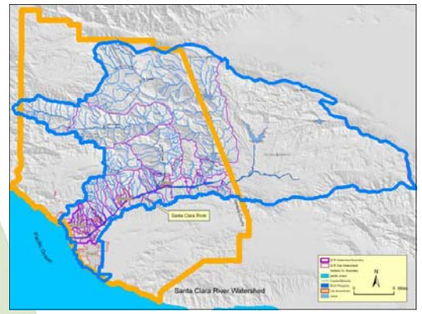


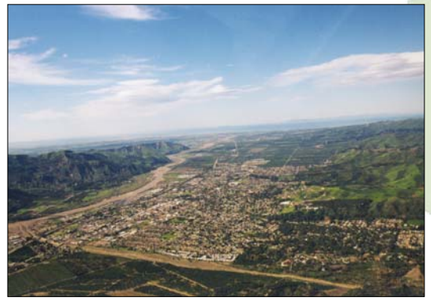
Photo Courtesy of Trust for Public Land

Santa Clara River Watershed



The Santa Clara River is the largest river system in Southern California remaining in a relatively natural state. Originating in the San Gabriel Mountains of Los Angeles County, the river flows west approximately 84 miles through Ventura County before reaching the Pacific Ocean between the cities of Ventura and Oxnard. The Santa Clara River and tributary system has an area of about 1634 square miles with approximately 60 percent of the watershed located in Ventura County and 40 percent in Los Angeles County.





The Santa Clara River Watershed is partially dependent on imported water from Calleguas Municipal Water District and heavily dependent on local groundwater sources.

The Santa Clara River supports a variety of vegetation communities, providing habitat to over 35 sensitive animal and plant species, 14 of which are considered endangered and/or threatened. The Santa Clara River Estuary, a natural preserve, is one of the richest habitat areas along the California coast.

Calleguas Creek Watershed

The Calleguas Creek Watershed encompasses approximately 341 square miles and the Cities of Camarillo, Moorpark, Simi Valley, and Thousand Oaks. Overall, the watershed is about 25% urbanized with projections up to 50% in the next ten years. Accelerated erosion rates in the Calleguas Creek Watershed have contributed to flooding and sedimentation of the Oxnard Plain and Mugu Lagoon, one of the few remaining significant natural saltwater lagoons in California and home to numerous threatened and endangered species.

CALLEGUAS CREEK Watershed Management Plan

Beginning in 1996, a broad coalition of local property owners, water and wastewater agencies, environmental groups, agricultural parties, governmental entities, and other private interests joined together to develop a management plan for the Calleguas Creek Watershed. The Calleguas Creek Watershed Management Plan, with broad stakeholder participation and support, addresses long range, comprehensive water resources; land use; economic development; open space preservation, enhancement and management; and public facility provision strategy which is cost-effective and provides benefits for all participants.

APPENDIX I

Adopted Resolutions and Letters of Support

Watersheds Coalition of Ventura County
Calleguas Creek Watershed Steering Committee
City of Camarillo
City of Fillmore
City of Moorpark
City of Ojai
City of Oxnard
City of Port Hueneme
City of San Buenaventura
City of Santa Paula
City of Simi Valley/Ventura County Waterworks District No. 8
City of Thousand Oaks
Calleguas Municipal Water District
Casitas Municipal Water District
United Water Conservation District
Camrosa Water District
Golden State Water Company
Ventura County Board of Supervisors
Ventura County Watershed Protection District Board of Supervisors
Ventura County Waterworks District #1
Ventura County Board of Supervisors - For Water and Sanitation
Camarillo Sanitary District
Ojai Valley Sanitary District
Saticoy Sanitary District
Ventura Regional Sanitation District
Fox Canyon Groundwater Management Agency
Ojai Basin Groundwater Management Agency
Ventura County Resource Conservation District
Friends of the Santa Clara River
The Nature Conservancy
The Ojai Valley Land Conservancy
Surfrider Foundation
The Trust for Public Land

WATERSHEDS COALITION OF VENTURA COUNTY INTEGRATED REGIONAL WATER MANAGEMENT GROUP

RESOLUTION No. 06-02

A RESOLUTION OF THE WATERSHEDS COALITION OF VENTURA COUNTY INTEGRATED REGIONAL WATER MANAGEMENT GROUP ADOPTING THE WATERSHEDS COALITION OF VENTURA COUNTY INTEGRATED REGIONAL WATER MANAGEMENT PLAN (WCVC IRWM PLAN)

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the WCVC was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the WCVC IRWM Group consists of more than three public agencies, at least two of which have statutory authority over water supply, water quality, flood control and storm water; and

WHEREAS, the WCVC IRWM Group published a Notice of Intention to adopt the WCVC IRWM Plan in accordance with Section 6066 of the Government Code; and

WHEREAS, the County of Ventura will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the County's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Watersheds Coalition of Ventura County hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The Watersheds Coalition of Ventura County hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

Passed and adopted at a meeting of the WCVC IRWM Group on November 9, 2006.

We, the undersigned, hereby certify that the foregoing Resolution No. 06-02 was duly adopted by the Watersheds Coalition of Ventura County Integrated Regional Water Management Group by the following vote:

Ayes: 14
Noes: 0

Susan Hughes, Co-Chair
WCVC

Dee Zinke, Co-Chair
WCVC

AUTHORIZING RESOLUTION NO. 06-03

A RESOLUTION OF THE CALLEGUAS CREEK WATERSHED STEERING COMMITTEE ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

WHEREAS, the Steering Committee of the Calleguas Creek Watershed Management Plan adopted the Calleguas Creek Watershed IRWMP (Volume II) on June 15, 2005, which is incorporated by reference and consistent with the Watersheds Coalition of Ventura County IRWMP and which includes projects of interest to the Steering Committee;

NOW, THEREFORE, BE IT RESOLVED, by the Steering Committee of the Calleguas Creek Watershed Management Plan, that the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan was presented to the Committee, the Committee reviewed and considered the plan, and the Committee hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

ADOPTED, SIGNED AND APPROVED this November 15, 2006.

Judy Mikels, Chairwoman
Steering Committee

RESOLUTION NO. 2006-165

A RESOLUTION OF THE CITY OF CAMARILLO ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50 (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 [Water Code Section 79560, et seq.]), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

WHEREAS, the City of Camarillo adopted the Calleguas Creek Watershed IRWMP on June 22, 2005, which is incorporated by reference and consistent with the Watersheds Coalition of Ventura County IRWMP and which includes projects of interest to City of Camarillo.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CAMARILLO DOES RESOLVE AND ORDER AS FOLLOWS:

SECTION 1. All of the above recitals are true and correct.

SECTION 2. The City of Camarillo hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

ADOPTED, SIGNED AND APPROVED this 29th day of November 2006.

Mayor

ATTEST:

City Clerk

I, DEBORAH A. HARRINGTON, hereby certify that the foregoing Resolution No. 2006-165 was adopted at a regular meeting of the City Council on the 29th day of November 2006, by members of the City Council voting as follows:

AYES: Councilmembers: Craven, Kildee, McDonald, Waunch, Mayor Morgan
NOES: Councilmembers: None
ABSENT: Councilmembers: None

City Clerk

c: County of Ventura
Calleguas Municipal Water District
Finance Department
Public Works Department

City of Fillmore
City Council Resolution NO. 06-2981

A RESOLUTION OF THE CIITY COUNCIL OF THE CITY OF FILLMORE ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the **City Council of the City of Fillmore** hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The City of Fillmore hereby adopts the Integrated Regional Water Management Plan prepared by the Watershed Coalition of Ventura County.

ADOPTED, SIGNED AND APPROVED this 14th day of November 2006.

Ernie Villegas, Mayor

ATTEST:

Angela Mumme, Deputy City Clerk

RESOLUTION NO. 2006-2550

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MOORPARK, CALIFORNIA, ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MOORPARK DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. All of the above recitals are true and correct.

SECTION 2. The City of Moorpark hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED AND ADOPTED this 20th day of December 2006.

Patrick Hunter, Mayor

ATTEST:

Deborah S. Traffenstedt

Deborah S. Traffenstedt, City Clerk

STATE OF CALIFORNIA)
COUNTY OF VENTURA) ss.
CITY OF MOORPARK)

I, Deborah S. Traffenstedt, City Clerk of the City of Moorpark, California, do hereby certify under penalty of perjury that the foregoing Resolution No. 2006-2550 was adopted by the City Council of the City of Moorpark at a regular meeting held on the 20th day of December, 2006, and that the same was adopted by the following vote:

AYES:	Councilmembers Mikos, Millhouse, Parvin, Van Dam, and Mayor Hunter
NOES:	None
ABSENT:	None
ABSTAIN:	None

WITNESS my hand and the official seal of said City this 22nd day of December, 2006.

Deborah S. Traffenstedt

Deborah S. Traffenstedt, City Clerk
(seal)

RESOLUTION NO. 06-45

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF OJAI, CALIFORNIA, ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

CERTIFICATION

I, Carlon C. Strobel, City Clerk of the City of Ojai, do hereby certify that the attached is a true and correct copy of City of Ojai Resolution No. 06-45 adopted by the Ojai City Council at their regular meeting of November 14, 2006.

Date: November 29, 2006

Carlon Strobel
City Clerk of the City of Ojai

CITY OF OJAI

Resolution No. 06- 45

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF OJAI, CALIFORNIA, ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA;

NOW, THEREFORE, The City of Ojai Resolves that:

1. All of the above recitals are true and correct.

2. The City of Ojai hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED, APPROVED and **ADOPTED** this 14th day of November 2006

David Bury
Mayor of the City of Ojai

ATTEST:

Carlon Strobel,
City Clerk of the City of Ojai

STATE OF CALIFORNIA)

COUNTY OF VENTURA)

CITY OF OJAI)

I, Carlon Strobel, City Clerk for the City of Ojai do hereby certify that the foregoing Resolution was duly passed and adopted by the City Council of said City at a regular meeting thereof held on the 14th day of November, 2006 by the following roll call vote:

AYES: Hanstad, Horgan, DeVito, Smith, Bury

NOES: None

RECUSE: None

ABSENT: None

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official Seal of said City this 14th day of November, 2006.

Carlon Strobel
City Clerk for the City of Ojai

Resolution No. 06-45

cs:rescert

CITY COUNCIL OF THE CITY OF OXNARD

RESOLUTION NO. 13,188

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF OXNARD APPROVING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE CITY MANAGER OF DESIGNEE TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects to develop and implement an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 implementation funds will only be awarded to regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the region; and

WHEREAS, the City of Oxnard has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to Section 15262 of Title 14 of the California Code of Regulations because the IRWMP is a planning study that identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the IRWMP consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the City of Oxnard has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the City's procedures for the implementation of CEQA; and

NOW, THEREFORE, the City Council of the City of Oxnard hereby resolves as follows:

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption prepared by the City of Oxnard, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The City Manager or designee is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The City of Oxnard hereby approves and adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED AND ADOPTED THIS 12th day of December, 2006 by the following vote:

AYES: Councilmembers Flynn, Herrera, Holden, Maulhardt and Zaragoza.

NOES: None.

ABSENT: None.

Dr. Thomas E. Holden, Mayor

ATTEST:

Daniel Martinez, City Clerk

APPROVED AS TO FORM:

Gary L. Gillig, City Attorney

RESOLUTION NO. 3507

RESOLUTION OF THE CITY OF PORT HUENEME ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE COMMUNITY DEVELOPMENT DIRECTOR TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the City of Port Hueneme has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the City of Port Hueneme has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the City of Port Hueneme hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption, prepared by the City of Port Hueneme, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The Community Development Director is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The City of Port Hueneme hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED, APPROVED, AND ADOPTED this 6th day of December, 2006.

MAYOR

ATTEST:

JUDY NICHOLS
ACTING CITY CLERK

APPROVED AS TO FORM:

MARK D. HENSLEY
CITY ATTORNEY

APPROVED AS TO CONTENT:

ROBERT L. HUNT
CITY MANAGER

CERTIFICATION

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS:
CITY OF PORT HUENEME)

I, JUDY NICHOLS, Acting City Clerk of the City of Port Hueneme, do hereby certify that the foregoing Resolution No. 3507 is a true and correct copy passed and approved at the Regular Council Meeting of December 6, 2006 by the City Council of the City of Port Hueneme by the following roll call vote:

AYES:	Council Members Rosenbluth, Sharkey, Griffaw, Mayor Pro Tem Young, Mayor Morales
NOES:	None
ABSTAINING:	None
ABSENT:	None

Judy Nichols, CMC

Judy Nichols, Acting City Clerk of Port Hueneme and ex-officio Clerk of the Council

DATED: December 7, 2006

RESOLUTION NO. 2006 - 073

A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN BUENAVENTURA ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE COMMUNITY DEVELOPMENT DEPARTMENT TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, City staff has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Community Development Department will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW THEREFORE, BE IT RESOLVED that the Council of the City of San Buenaventura as follows:

SECTION 1: The City Council finds as follows:

A. All of the above recitals are true and correct.

STATE OF CALIFORNIA)
COUNTY OF VENTURA) ss
CITY OF SAN BUENAVENTURA)

I, ELAINE M. PRESTON, Deputy City Clerk of the City of San Buenaventura, California, certify that the foregoing Resolution was passed and adopted by the City Council of the City of San Buenaventura at a regular meeting on December 4, 2006, by the following vote:

AYES: Councilmembers Brennan, Summers, Fulton, Andrews, Monahan, Weir, and Morehouse.

NOES: None.

ABSENT: None.

IN WITNESS WHEREOF, I have set my hand and affixed the seal of the City of San Buenaventura on December 5, 2006.

Deputy City Clerk

CITY OF EUREKA 1866 1905

STATE OF CALIFORNIA)
)
COUNTY OF VENTURA) ss.
)
CITY OF SAN BUENAVENTURA)

I, Elaine M. Preston, Deputy City Clerk of the City of San Buenaventura, do hereby certify that the foregoing is a true and correct copy of Resolution No. 2006-073 adopted by the City Council on December 4, 2006.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the official seal of said City to be affixed on December 11, 2006.

Elaine M. Preston
Deputy City Clerk

RESOLUTION NO. 6367

A RESOLUTION APPROVING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY AND AUTHORIZING THE CITY MANAGER TO EXECUTE ALL DOCUMENTS RELATED TO SUCH PLAN.

BE IT RESOLVED by the City Council for the City of Santa Paula as follows:

SECTION 1: The City Council find and declares as follows:

A. The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code §§ 79560, *et seq.*) includes an appropriation of $500 million to fund competitive grants for projects that are consistent with an Integrated Regional Water Management Plan (IRWMP);

B. The IRWMP for the Watersheds Coalition of Ventura County was drafted in a comprehensive process among various public entities and provides for ongoing data gathering, planning, design, implementation, and evaluation in a long-term public process;

C. Adopting the Watersheds Coalition of Ventura County IRWMP ensures comprehensive planning for water management within Ventura County among various agencies;

D. The County of Ventura prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP based upon the statutory and categorical exemptions set forth in CEQA Guidelines §§ 15262, 15306, 15307, and 15308 because the IRWMP is a planning study that identifies potential projects, programs, and policies for possible future actions; and it consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment. The City Council is satisfied with, and relies upon, that Notice of Exemption.

SECTION 2: The City Council adopts the attached Watersheds Coalition of Ventura County Integrated Regional Water Management Plan ("Plan") and incorporates it into this Resolution as if fully set forth.

SECTION 3: Authorizations

A. Except as may otherwise be provided by law for legislative

determinations, the City manager, or designee, is authorized to act on the City's behalf in approving any alterations or modifications to the approved Plan as may be required by the Plan or applicable law.

B. The City Manager is authorized to execute such documents related to the Plan, approved as to form by the City Attorney, that may be required for its implementation.

SECTION 4: The City Clerk is directed to certify the adoption of this Resolution.

SECTION 5: This Resolution will become effective immediately upon adoption. PASSED AND ADOPTED this 2 day of January, 2007.

Ray C. Luna, Mayor

APPROVED AS TO FORM:

Karl H. Berger,
City Attorney

APPROVED AS TO CONTENT:

Wally Bobkiewicz,
City Manager

ATTEST:

Josie G. Herrera,
City Clerk

CITY OF SANTA PAULA INCORPORATED APRIL 22, 1902 VENTURA CO. CAL.

County Waterworks District No. 8
City of Simi Valley
2929 Tapo Canyon Road, Simi Valley, California 93063 (805) 583-6700

November 27, 2006

Dee Zinke, Co-Chair
Watersheds Coalition of Ventura County
c/o Calleguas Municipal Water District
2100 Olsen Road
Thousand Oaks, CA 91360-6800

Dear Ms. Zinke:

On November 20, 2006, the Simi Valley City Council and the Ventura County Waterworks District No. 8 Board of Directors jointly adopted a Resolution adopting the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan (IRWMP). A signed copy of the Resolution is enclosed herein.

Please let me know if you have any questions.

Sincerely,

Joe Deakin
District Engineer

Enclosure

RESOLUTION NO. 2006-68
RESOLUTION NO. WWD-208

A JOINT RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SIMI VALLEY AND THE BOARD OF DIRECTORS OF VENTURA COUNTY WATERWORKS DISTRICT NO. 8 ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

WHEREAS, the City of Simi Valley has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Procedures for the Implementation of CEQA.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SIMI VALLEY AND THE BOARD OF DIRECTORS OF VENTURA COUNTY WATERWORKS DISTRICT NO. 8 DO HEREBY RESOLVE AS FOLLOWS:

SECTION 1. All of the above recitals are true and correct.

SECTION 2. The City Council and the Board of Directors of Ventura County Waterworks District No. 8 find and determine that the Watersheds Coalition of Ventura County IRWMP incorporates the previously approved Calleguas Creek IRWMP, which includes projects of interest to the City of Simi Valley.

RES. NO. 2006-68
RES. NO. WWD-208

SECTION 3. Based on review of the Notice of Exemption prepared by the City of Simi Valley, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

SECTION 4. The City Clerk/District Secretary is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

SECTION 5. The City Council of the City of Simi Valley and the Board of Directors of Ventura County Waterworks District No. 8 hereby adopt the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

SECTION 6. The City Clerk/District Secretary shall certify to the adoption of this resolution and shall cause a certified resolution to be filed in the Office of the City Clerk/District Secretary.

PASSED and ADOPTED this 20th day of November 2006.

Attest:

Alice K. Redondo
Deputy Director/City Clerk/District Secretary

Paul Miller, Mayor of the City of
Simi Valley, California and Chair of
Ventura County Waterworks District No. 8

Approved as to Form:

David H. Hirsch, City Attorney/District Counsel

Approved as to Content:

Mike Sedell, City Manager/District Manager

Timothy P. Hanson, Director
Department of Public Works

RES. NO. 2006-68
RES. NO. WWD-208

I, Deputy Director/City Clerk/District Secretary of the City of Simi Valley/Ventura County Waterworks District No. 8, do hereby certify that the foregoing Joint Resolution Nos. 2006-68 and WWD-208, was regularly introduced and adopted by the City Council/Boards of Directors at an adjourned meeting thereof held on the 20th day of November, 2006, by the following vote:

AYES:	Council Members/Directors Foster, Sojka, Mayor Pro Tem/Vice-Chair Becerra, and Mayor/Chair Miller
NAYS:	None
ABSENT:	Council Member/Director Williamson
ABSTAINED:	None

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Simi Valley/Ventura County Waterworks District No. 8, this 21st day of November, 2006.

Alice K. Redondo
Deputy Director/City Clerk/District Secretary

RESOLUTION NO. 2006-155

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF THOUSAND OAKS ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the City of Thousand Oaks has been working with a broad coalition of local cities, water and wastewater agencies, environmental groups, agricultural parties, governmental agencies, property owners, and other private interests since 1996 to develop a water management plan for the Calleguas Creek Watershed and regional water management strategies for the County of Ventura; and

WHEREAS, the Watersheds Coalition of Ventura County was formed in 2004 to develop a countywide IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was prepared through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

WHEREAS, the City Council of the City of Thousand Oaks adopted the Calleguas Creek Watershed IRWMP on July 12, 2005, which is consistent with the Watersheds Coalition of Ventura County IRWMP and includes projects of interest to the City of Thousand Oaks.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Thousand Oaks hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED AND ADOPTED this 28th day of November, 2006.

Dennis C. Gillette, Mayor
City of Thousand Oaks, California

ATTEST:

Linda D. Lawrence, City Clerk

APPROVED AS TO FORM:

Amy Albano, City Attorney

APPROVED AS TO ADMINISTRATION:

Scott Mitnick, City Manager

CERTIFICATION

STATE OF CALIFORNIA)
COUNTY OF VENTURA) SS.
CITY OF THOUSAND OAKS)

I, LINDA D. LAWRENCE, City Clerk of the City of Thousand Oaks, DO HEREBY CERTIFY that the foregoing is a full, true, and correct copy of Resolution No. 2006-155, which was duly and regularly passed and adopted by said City Council at a regular meeting held November 28, 2006 by the following vote:

AYES: Councilmembers Bill-de la Peña, Glancy, Irwin, Fox and Mayor Gillette

NOES: None

ABSENT: None

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Thousand Oaks, California.

Linda D. Lawrence, City Clerk
City of Thousand Oaks, California

RESOLUTION NO.1532

RESOLUTION OF THE BOARD OF DIRECTORS OF
CALLEGUAS MUNICIPAL WATER DISTRICT
ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN
PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq.), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

WHEREAS, Calleguas adopted the Calleguas Creek Watershed IRWMP on June 15, 2005, which is incorporated by reference and consistent with the Watersheds Coalition of Ventura County IRWMP and which includes projects of interest to Calleguas;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of Calleguas Municipal Water District hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

ADOPTED, SIGNED AND APPROVED this 15th day of November, 2006.

Ted Grandsen, President
Board of Directors

I HEREBY CERTIFY that the foregoing Resolution was adopted at a regular meeting of the Board of Directors of Calleguas Municipal Water District held on November 15th, 2006.

ATTEST:

(SEAL)

Donald G. Hauser, Secretary
Board of Directors

CASITAS **MUNICIPAL** WATER DISTRICT

RESOLUTION NO. 06-57

RESOLUTION FOR ADOPTION OF THE INTEGRATED REGIONAL WATER MANGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY AND AUTHORIZING, ADOPTING THE NOTICE OF EXEMPTION, AND DIRECTING THE NOTICE OF EXEMPTION TO BE FILED WITH THE CLERK OF THE COUNTY OF VENTURA

WHEREAS, it was determined that the project is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Casitas Municipal Water District has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Casitas Municipal Water District has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Casitas Municipal Water District hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption prepared by the Casitas Municipal Water District, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The Casitas Municipal Water District will file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Casitas Municipal Water District hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

5. That the Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP is attached hereto as Exhibit "A" is hereby adopted.

6. That the Clerk of the Board file the Notice of Exemption with the Clerk of the County of Ventura.

ADOPTED this 22nd day of November, 2006.

President,
Casitas Municipal Water District

ATTEST

Secretary,
Casitas Municipal Water District

RESOLUTION NO. 2006-18

A RESOLUTION OF THE BOARD OF DIRECTORS OF UNITED WATER CONSERVATION DISTRICT ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY AND AUTHORIZING GENERAL MANAGER DANA WISEHART TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, United Water Conservation District has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the District has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that United Water Conservation District hereby finds, determines, and declares as follows:

RESOLUTION No. 2006-18
(continued)

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption prepared by United Water Conservation District the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. General Manager Dana Wisehart is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

United Water Conservation District hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED, APPROVED AND ADOPTED this 8th day of November, 2006.

ATTEST Roger E. Orr
Roger E. Orr, President

ATTEST Robert Eranio
Robert Eranio, Secretary/Treasurer

CAMROSA Water District

Resolution No: 06-11

A Resolution of the Board of Directors of Camrosa Water District

Adopting the Integrated Regional Water Management Plan Prepared by the Watersheds Coalition of Ventura County

Whereas, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and,

Whereas, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and,

Whereas, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and,

Whereas, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP helps support multi-agency participation and future water management planning efforts in the Region; and,

Whereas, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the County's Procedures for the Implementation of CEQA; and,

Whereas, the Camrosa Water District adopted the Calleguas Creek Watershed IRWMP on June 23, 2005, which is incorporated by reference and consistent with the Watersheds Coalition of Ventura County IRWMP and which includes projects of interest to the Camrosa Water District; and,

Now, Therefore, Be It Resolved *by the Camrosa Water District Board of Directors that it hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.*

Adopted Signed and Approved *this 30th day of November, 2006.*

Al E. Fox, President
Board of Directors
Camrosa Water District

ATTEST:

Richard H. Hajas, Secretary
Board of Directors
Camrosa Water District

Golden State
Water Company
A Subsidiary of American States Water Company

GOLDEN STATE WATER COMPANY ADOPTS THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT KNOWN, that the Golden State Water Company hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The Golden State Water Company hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

Denise L. Kruger

Denise L. Kruger
Senior Vice President

Robert J. Sprowls

Robert J. Sprowls
Corporate Secretary

BOARD MINUTES
BOARD OF SUPERVISORS, COUNTY OF VENTURA, STATE OF CALIFORNIA

SUPERVISORS STEVE BENNETT, LINDA PARKS, KATHY I. LONG, JUDY MIKELS AND JOHN K. FLYNN

December 5, 2006 at 10:00 a.m.

FC- Gen

Adoption of a Resolution Regarding the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the County Executive Officer to File a CEQA Notice of Exemption - All Supervisorial Districts. (County Executive Office)

(X) All board members are present.

(X) The following persons are heard: Sue Hughes, Dana Wisehart and Paul Jenkin.

(X) Upon motion of Supervisor Mikels, seconded by Supervisor Long, and duly carried, the Board hereby approves the attached staff recommendation.

By: Kathryn Price
Deputy Clerk of the Board

CLERK'S CERTIFICATE
I hereby certify that the annexed instrument Is a true and correct copy of the document which is on file in this office.
JOHN F. JOHNSTON, Clerk of the Board of Supervisors, County of Ventura, State of California.

Dated: _____

By: _____
Deputy Clerk of the Board

Item 17
12/5/06

DISTRIBUTION: Originating Agency, Auditor, File

county of ventura

COUNTY EXECUTIVE OFFICE
JOHN F. JOHNSTON
County Executive Officer

December 5, 2006

Board of Supervisors
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009

SUBJECT: **A Resolution Adopting the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the County Executive Officer to File a CEQA Notice of Exemption - All Supervisorial Districts**

(IRWMP on file with Clerk of the Board)

RECOMMENDATIONS:

It is recommended that your Board adopt the attached Resolution that:

1. Finds that the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan is exempt from the California Environmental Quality Act (CEQA).

2. Authorizes and directs the County Executive Officer to file a Notice of Exemption in accordance with provisions of CEQA.

3. Adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

FISCAL IMPACT:

None

DISCUSSION

In November 2002, California voters approved the passage of Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which provided, among other water programs, funding for a new water resource planning model known as Integrated Regional Water Management Planning. Under Chapter 8 of

Proposition 50, the authors set aside $500 million as an incentive to encourage water interests to work together to plan projects that address multiple needs and multiple uses in a Region, including increased water supply, improved water quality, improved flood protection and enhanced habitat and recreation. Water interests in Ventura County have a long history of working together to address water resources issues and decided to pursue funding under this program.

The Ventura Countywide Integrated Regional Water Management (VCIRWM) Group was formed in September 2004 in response to funding opportunities found in Chapter 8, Proposition 50, which requires that any projects proposed for funding under Chapter 8 be consistent with an Adopted Integrated Regional Water Management Plan (IRWMP). The VCIRWMP Group consisted of key stakeholders in the Ventura and Santa Clara River Watersheds; this Group guided the development of an Interim Integrated Regional Water Management Plan for these two Watersheds, which was completed in July 2005.

The Calleguas Creek Steering Committee, consisting of key stakeholders in the Calleguas Creek Watershed, was formed in 1996 to develop a Watershed Management Plan for the Calleguas Creek. That Plan was completed and adopted in November 2004. On June 15, 2005, the Calleguas Creek Steering Committee amended the Watershed Management Plan and successfully adopted the Calleguas Creek Integrated Regional Water Management Plan.

In July 2005, the VCIRWM Group and the Calleguas Creek Steering Committee each applied for a Step 1 Proposition 50 Implementation Grant to construct and advance the projects outlined in their respective Interim and Adopted IRWMPs. In the fall of 2005, the Department of Water Resources, as one of the agencies authorized to oversee Proposition 50 grants, requested the voluntary consolidation of a number of Regions for the purposes of application for Step 2 Implementation Grant funds. The VCIRWMP Group and the Calleguas Creek Steering Committee agreed on November 22, 2005 and December 15, 2005, respectively, to consolidate into one planning Region, consolidate the two IRWMPs, and to submit a single application for Step 2 Implementation Grant funds.

In March 2006, the newly consolidated Region was one of sixteen to receive a call-back from the State to apply for Step 2 Implementation Grant funds. In April 2006 the Watersheds Coalition of Ventura County (WCVC) was formed by joint resolution of the Ventura Countywide Integrated Regional Water Management Group and the Calleguas Creek Steering Committee to oversee the consolidation of the two IRWMPs, submit a Step 2 Implementation Grant application for $25 million, and pursue future IRWM funding. And on April 27, 2006 the Watersheds Coalition of Ventura County by Resolution 06-01, authorized, designated and requested the County of Ventura to file an application for a Proposition 50, Step 2 Implementation Grant and to enter into an agreement with the State.

Proposition 50, Chapter 8 Implementation funds will only be awarded to agencies with an adopted IRWMP. Future water bond funding for Integrated Regional Water Management projects will likely require the adoption of an IRWMP. The IRWMP for the Watersheds Coalition of Ventura County (consisting of some 60-plus agencies and organizations) was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation and evaluation through a long-term, iterative, community-based process.

The County Executive Office has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the adoption of the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment.

It is recommended that your Board adopt the CEQA exemption findings and the IRWMP through the attached Resolution, and authorize the County Executive Officer to file a CEQA Notice of Exemption.

This Board letter has been reviewed by County Counsel and the County Executive Office. If you have questions concerning this item, please contact Sue Hughes, CEO Legislative Analyst, at 805-654-3836.

Sincerely,

per Hal Dam

JOHN F. JOHNSTON
County Executive Officer

Attachment 1: Resolution

ATTACHMENT 1

A RESOLUTION OF THE VENTURA COUNTY BOARD OF SUPERVISORS ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE COUNTY EXECUTIVE OFFICER TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Ventura County Executive Office has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the County Executive Officer will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the County's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Ventura County Board of Supervisors hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant

to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The County Executive Officer is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Ventura County Board of Supervisors hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

ADOPTED, SIGNED AND APPROVED this December 5, 2006.

Linda Parks, Chair
Ventura County Board of Supervisors

ATTEST: JOHN F. JOHNSTON
Clerk of the Board of Supervisors
County of Ventura, State of California

By: _____
Deputy Clerk of the Board

BOARD MINUTES
BOARD OF SUPERVISORS, COUNTY OF VENTURA, STATE OF CALIFORNIA

SUPERVISORS STEVE BENNETT, LINDA PARKS, KATHY I. LONG, JUDY MIKELS AND JOHN K. FLYNN

December 5, 2006 at 10:00 a.m.

FC- Gen

Adoption of a Resolution Regarding the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the District Director to File a CEQA Notice of Exemption - All Supervisorial Districts. (Public Works Agency - Watershed Protection District)

(X) All board members are present.

(X) The following persons are heard: Sue Hughes, Dana Wisehart and Paul Jenkin.

(X) Upon motion of Supervisor Mikels, seconded by Supervisor Long, and duly carried, the Board hereby approves the attached staff recommendation.

By: Kathryn Price
Deputy Clerk of the Board

CLERK'S CERTIFICATE
I hereby certify that the annexed instrument
Is a true and correct copy of the document
which is on file in this office.
JOHN F. JOHNSTON, Clerk of the Board of Supervisors,
County of Ventura, State of California.

Dated: _____

By: _____
Deputy Clerk of the Board

Item 18
12/5/06

DISTRIBUTION: Originating Agency, Auditor, File

VENTURA COUNTY
WATERSHED PROTECTION DISTRICT

PUBLIC WORKS AGENCY
RONALD C. COONS
Agency Director

December 5, 2006

Jeff Pratt
District Director

Gerhardt Hubner
Water/Environmental Resources

Peter Sheydayi
Design/Construction

Sergio Vargas
Planning/Regulatory

Tom Lagier
Operations/Maintenance

Board of Supervisors
Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

SUBJECT: **A Resolution Adopting the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the District Director to File a CEQA Notice of Exemption – All Supervisorial Districts**

(IRWMP on file with Clerk of the Board)

RECOMMENDATIONS:

It is recommended that the Ventura County Watershed Protection District Board of Supervisors adopt the attached Resolution that:

1. Finds that the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan is exempt from the California Environmental Quality Act (CEQA).

2. Authorizes and directs the District Director to file a Notice of Exemption in accordance with provisions of CEQA.

3. Adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

FISCAL IMPACT:

None

DISCUSSION

In November 2002, California voters approved the passage of Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which provided, among other water programs, funding for a new water resource planning model

known as Integrated Regional Water Management Planning. Under Chapter 8 of Proposition 50, the authors set aside $500 million as an incentive to encourage water interests to work together to plan projects that address multiple needs and multiple uses in a Region, including increased water supply, improved water quality, improved flood protection and enhanced habitat and recreation. Water interests in Ventura County have a long history of working together to address water resources issues and decided to pursue funding under this program.

The Ventura Countywide Integrated Regional Water Management (VCIRWM) Group was formed in September 2004 in response to funding opportunities found in Chapter 8, Proposition 50, which requires that any projects proposed for funding under Chapter 8 be consistent with an Adopted Integrated Regional Water Management Plan (IRWMP). The VCIRWMP Group consisted of key stakeholders in the Ventura and Santa Clara River Watersheds; this Group guided the development of an Interim Integrated Regional Water Management Plan for these two Watersheds, which was completed in July 2005.

The Calleguas Creek Steering Committee, consisting of key stakeholders in the Calleguas Creek Watershed, was formed in 1996 to develop a Watershed Management Plan for the Calleguas Creek. That Plan was completed and adopted in November 2004. On June 15, 2005, the Calleguas Creek Steering Committee amended the Watershed Management Plan and successfully adopted the Calleguas Creek Integrated Regional Water Management Plan.

In July 2005, the VCIRWM Group and the Calleguas Creek Steering Committee each applied for a Step 1 Proposition 50 Implementation Grant to construct and advance the projects outlined in their respective Interim and Adopted IRWMPs. In the fall of 2005, the Department of Water Resources, as one of the agencies authorized to oversee Proposition 50 grants, requested the voluntary consolidation of a number of Regions for the purposes of application for Step 2 Implementation Grant funds. The VCIRWMP Group and the Calleguas Creek Steering Committee agreed on November 22, 2005 and December 15, 2005, respectively, to consolidate into one planning Region, consolidate the two IRWMPs, and to submit a single application for Step 2 Implementation Grant funds.

In March 2006, the newly consolidated Region was one of sixteen to receive a call-back from the State to apply for Step 2 Implementation Grant funds. In April 2006 the Watersheds Coalition of Ventura County (WCVC) was formed by joint resolution of the Ventura Countywide Integrated Regional Water Management Group and the Calleguas Creek Steering Committee to oversee the consolidation of the two IRWMPs, submit a Step 2 Implementation Grant application for $25 million, and pursue future IRWM funding. And on April 27, 2006 the Watersheds Coalition of Ventura County by Resolution 06-01, authorized, designated and requested the County of Ventura to file an application for a Proposition 50, Step 2 Implementation Grant and to enter into an agreement with the State.

Proposition 50, Chapter 8 Implementation funds will only be awarded to agencies with an adopted IRWMP. Future water bond funding for Integrated Regional Water Management projects will likely require the adoption of an IRWMP. The IRWMP for the Watersheds Coalition of Ventura County (consisting of some 60-plus agencies and organizations) was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation and evaluation through a long-term, iterative, community-based process.

District staff has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the adoption of the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment.

It is recommended that the Watershed Protection District Board of Supervisors adopt the CEQA exemption findings and the IRWMP through the attached Resolution, and authorize the District Director to file a CEQA Notice of Exemption.

This Board letter has been reviewed by County Counsel and the County Executive Office. If you have questions concerning this item, please contact Sue Hughes, CEO Legislative Analyst, at 805-654-3836.

Sincerely,

JEFF PRATT, P.E
Director

Attachment 1: Resolution

ATTACHMENT 1

A RESOLUTION OF THE VENTURA COUNTY WATERSHED PROTECTION DISTRICT BOARD OF SUPERVISORS ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE DISTRICT DIRECTOR TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Ventura County Watershed Protection District has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the District Director will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Ventura County Watershed Protection District Board of Supervisors hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The District Director is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Ventura County Watershed Protection District Board of Supervisors hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

ADOPTED, SIGNED AND APPROVED this December 5, 2006.

Linda Parks, Chair
Ventura County Board of Supervisors

ATTEST: JOHN F. JOHNSTON
Clerk of the Board of Supervisors
County of Ventura, State of California

By: _____
Deputy Clerk of the Board

BOARD MINUTES
BOARD OF SUPERVISORS, COUNTY OF VENTURA, STATE OF CALIFORNIA

SUPERVISORS STEVE BENNETT, LINDA PARKS, KATHY I. LONG, JUDY MIKELS AND JOHN K. FLYNN

December 5, 2006 at 10:00 a.m.

FC- Gen

Adoption of a Resolution Regarding the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the Director of Water and Sanitation to File A CEQA Notice of Exemption - Waterworks District #1, Supervisorial District 4. (Public Works Agency - Waterworks Districts)

(X) All board members are present.

(X) The following persons are heard: Sue Hughes, Dana Wisehart and Paul Jenkin.

(X) Upon motion of Supervisor Mikels, seconded by Supervisor Long, and duly carried, the Board hereby approves the attached staff recommendation.

By: Kathryn Price
Deputy Clerk of the Board

CLERK'S CERTIFICATE
I hereby certify that the annexed instrument
Is a true and correct copy of the document
which is on file in this office.
JOHN F. JOHNSTON, Clerk of the Board of Supervisors,
County of Ventura, State of California.

Dated: _____

By: _____
Deputy Clerk of the Board

Item 19
12/5/06

DISTRIBUTION: Originating Agency, Auditor, File

VENTURA COUNTY WATERWORKS DISTRICTS

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
RONALD C. COONS
Agency Director

Representing: Ventura County Waterworks Districts No. 1, 16, 17, and 19

Water & Sanitation Department
R. Reddy Pakala
Director
Anne Dana
Administration
Satya Karra
Operations
Cefe Munoz
Engineering

December 5, 2006

Board of Supervisors
Ventura County Waterworks District # 1
800 South Victoria Avenue
Ventura, CA 93009

SUBJECT: **A Resolution Adopting the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the Director of Water and Sanitation to File a CEQA Notice of Exemption – Waterworks District #1, Supervisorial District 4**

(IRWMP on file with Clerk of the Board)

RECOMMENDATIONS:

It is recommended that the Ventura County Waterworks District #1 Board of Supervisors adopt the attached Resolution that:

1. Finds that the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan is exempt from the California Environmental Quality Act (CEQA).

2. Authorizes and directs the Director of Water and Sanitation to file a Notice of Exemption in accordance with provisions of CEQA.

3. Adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

FISCAL IMPACT:

None

DISCUSSION

In November 2002, California voters approved the passage of Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which provided, among other water programs, funding for a new water resource planning model

known as Integrated Regional Water Management Planning. Under Chapter 8 of Proposition 50, the authors set aside $500 million as an incentive to encourage water interests to work together to plan projects that address multiple needs and multiple uses in a Region, including increased water supply, improved water quality, improved flood protection and enhanced habitat and recreation. Water interests in Ventura County have a long history of working together to address water resources issues and decided to pursue funding under this program.

The Ventura Countywide Integrated Regional Water Management (VCIRWM) Group was formed in September 2004 in response to funding opportunities found in Chapter 8, Proposition 50, which requires that any projects proposed for funding under Chapter 8 be consistent with an Adopted Integrated Regional Water Management Plan (IRWMP). The VCIRWMP Group consisted of key stakeholders in the Ventura and Santa Clara River Watersheds; this Group guided the development of an Interim Integrated Regional Water Management Plan for these two Watersheds, which was completed in July 2005.

The Calleguas Creek Steering Committee, consisting of key stakeholders in the Calleguas Creek Watershed, was formed in 1996 to develop a Watershed Management Plan for the Calleguas Creek. That Plan was completed and adopted in November 2004. On June 15, 2005, the Calleguas Creek Steering Committee amended the Watershed Management Plan and successfully adopted the Calleguas Creek Integrated Regional Water Management Plan.

In July 2005, the VCIRWM Group and the Calleguas Creek Steering Committee each applied for a Step 1 Proposition 50 Implementation Grant to construct and advance the projects outlined in their respective Interim and Adopted IRWMPs. In the fall of 2005, the Department of Water Resources, as one of the agencies authorized to oversee Proposition 50 grants, requested the voluntary consolidation of a number of Regions for the purposes of application for Step 2 Implementation Grant funds. The VCIRWMP Group and the Calleguas Creek Steering Committee agreed on November 22, 2005 and December 15, 2005, respectively, to consolidate into one planning Region, consolidate the two IRWMPs, and to submit a single application for Step 2 Implementation Grant funds.

In March 2006, the newly consolidated Region was one of sixteen to receive a call-back from the State to apply for Step 2 Implementation Grant funds. In April 2006 the Watersheds Coalition of Ventura County (WCVC) was formed by joint resolution of the Ventura Countywide Integrated Regional Water Management Group and the Calleguas Creek Steering Committee to oversee the consolidation of the two IRWMPs, submit a Step 2 Implementation Grant application for $25 million, and pursue future IRWM funding. And on April 27, 2006 the Watersheds Coalition of Ventura County by Resolution 06-01, authorized, designated and requested the County of Ventura to file an application for a

Proposition 50, Step 2 Implementation Grant and to enter into an agreement with the State.

Proposition 50, Chapter 8 Implementation funds will only be awarded to agencies with an adopted IRWMP. Future water bond funding for Integrated Regional Water Management projects will likely require the adoption of an IRWMP. The IRWMP for the Watersheds Coalition of Ventura County (consisting of some 60-plus agencies and organizations) was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation and evaluation through a long-term, iterative, community-based process.

District staff has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the adoption of the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment.

It is recommended that the Waterworks District #1 Board of Supervisors adopt the CEQA exemption findings and IRWMP through the attached Resolution, and authorize the Director of Water and Sanitation to file a CEQA Notice of Exemption.

This Board letter has been reviewed by County Counsel and the County Executive Office. If you have questions concerning this item, please contact Sue Hughes, CEO Legislative Analyst, at 805-654-3836.

Sincerely,

R. R. PAKALA,
Director, Water and Sanitation

Attachment 1: Resolution

ATTACHMENT 1

A RESOLUTION OF THE VENTURA COUNTY WATERWORKS DISTRICT #1 BOARD OF SUPERVISORS ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE DIRECTOR OF WATER AND SANITATION TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Ventura County Waterworks District #1 has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Director of Water and Sanitation will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the District's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Ventura County Waterworks District #1 Board of Supervisors hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant

to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The Director of Water and Sanitation is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Ventura County Waterworks District #1 Board of Supervisors hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

ADOPTED, SIGNED AND APPROVED this December 5, 2006.

Linda Parks, Chair
Ventura County Board of Supervisors

ATTEST: JOHN F. JOHNSTON
Clerk of the Board of Supervisors
County of Ventura, State of California

By: _____
Deputy Clerk of the Board

BOARD MINUTES
BOARD OF SUPERVISORS, COUNTY OF VENTURA, STATE OF CALIFORNIA

SUPERVISORS STEVE BENNETT, LINDA PARKS, KATHY I. LONG, JUDY MIKELS AND JOHN K. FLYNN

December 5, 2006 at 10:00 a.m.

FC- Gen

Adoption of a Resolution Regarding the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the Director of Water and Sanitation to File a CEQA Notice of Exemption - County Service Area #34, El Rio, Supervisorial District 5. (Public Works Agency - Water & Sanitation Department)

(X) All board members are present.

(X) The following persons are heard: Sue Hughes, Dana Wisehart and Paul Jenkin.

(X) Upon motion of Supervisor Mikels, seconded by Supervisor Long, and duly carried, the Board hereby approves the attached staff recommendation.

By: _____
Deputy Clerk of the Board

CLERK'S CERTIFICATE
I hereby certify that the annexed instrument is a true and correct copy of the document which is on file in this office.
JOHN F. JOHNSTON, Clerk of the Board of Supervisors, County of Ventura, State of California.

Dated: _____

By: _____
Deputy Clerk of the Board

Item 20
12/5/06

DISTRIBUTION: Originating Agency, Auditor, File

county of ventura

PUBLIC WORKS AGENCY
RONALD C. COONS
Agency Director

Representing:
Camarillo Airport
County Service Area No. 29 (North Coast)
County Service Area No. 30 (Nyeland Acres)
County Service Area No. 34 (El Rio)
Juvenile Justice Center
Lake Sherwood Community Services District
Todd Road Jail

Water & Sanitation Department
R. Reddy Pakala
Director
Anne Dana
Administration
Satya Karra
Operations
Cefe Munoz
Engineering

December 5, 2006

Board of Supervisors
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009

SUBJECT: **A Resolution Adopting the Integrated Regional Water Management Plan (IRWMP) Prepared by the Watersheds Coalition of Ventura County (WCVC), and Authorizing the Director of Water and Sanitation to File a CEQA Notice of Exemption – County Service Area #34, El Rio, Supervisorial District 5**

(IRWMP on file with Clerk of the Board)

RECOMMENDATIONS:

It is recommended that the Board of Supervisors adopt the attached Resolution that:

1. Finds that the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan is exempt from the California Environmental Quality Act (CEQA).

2. Authorizes and directs the Director of Water and Sanitation to file a Notice of Exemption in accordance with provisions of CEQA.

3. Adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

FISCAL IMPACT:

None

DISCUSSION:

In November 2002, California voters approved the passage of Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which provided, among other water programs, funding for a new water resource planning model known as Integrated Regional Water Management Planning. Under Chapter 8 of Proposition 50, the authors set aside $500 million as an incentive to encourage water interests to work together to plan projects that address multiple needs and multiple uses in a Region, including increased water supply, improved water quality, improved flood protection and enhanced habitat and recreation. Water interests in Ventura County have a long history of working together to address water resources issues and decided to pursue funding under this program.

The Ventura Countywide Integrated Regional Water Management (VCIRWM) Group was formed in September 2004 in response to funding opportunities found in Chapter 8, Proposition 50, which requires that any projects proposed for funding under Chapter 8 be consistent with an Adopted Integrated Regional Water Management Plan (IRWMP). The VCIRWMP Group consisted of key stakeholders in the Ventura and Santa Clara River Watersheds; this Group guided the development of an Interim Integrated Regional Water Management Plan for these two Watersheds, which was completed in July 2005.

The Calleguas Creek Steering Committee, consisting of key stakeholders in the Calleguas Creek Watershed, was formed in 1996 to develop a Watershed Management Plan for the Calleguas Creek. That Plan was completed and adopted in November 2004. On June 15, 2005, the Calleguas Creek Steering Committee amended the Watershed Management Plan and successfully adopted the Calleguas Creek Integrated Regional Water Management Plan.

In July 2005, the VCIRWM Group and the Calleguas Creek Steering Committee each applied for a Step 1 Proposition 50 Implementation Grant to construct and advance the projects outlined in their respective Interim and Adopted IRWMPs. In the fall of 2005, the Department of Water Resources, as one of the agencies authorized to oversee Proposition 50 grants, requested the voluntary consolidation of a number of Regions for the purposes of application for Step 2 Implementation Grant funds. The VCIRWMP Group and the Calleguas Creek Steering Committee agreed on November 22, 2005 and December 15, 2005, respectively, to consolidate into one planning Region, consolidate the two IRWMPs, and to submit a single application for Step 2 Implementation Grant funds.

In March 2006, the newly consolidated Region was one of sixteen to receive a call-back from the State to apply for Step 2 Implementation Grant funds. In April 2006 the Watersheds Coalition of Ventura County (WCVC) was formed by joint resolution of the Ventura Countywide Integrated Regional Water Management Group and the Calleguas

Creek Steering Committee to oversee the consolidation of the two IRWMPs, submit a Step 2 Implementation Grant application for $25 million, and pursue future IRWM funding. And on April 27, 2006 the Watersheds Coalition of Ventura County by Resolution 06-01, authorized, designated and requested the County of Ventura to file an application for a Proposition 50, Step 2 Implementation Grant and to enter into an agreement with the State.

Proposition 50, Chapter 8 Implementation funds will only be awarded to agencies with an adopted IRWMP. Future water bond funding for Integrated Regional Water Management projects will likely require the adoption of an IRWMP. The IRWMP for the Watersheds Coalition of Ventura County (consisting of some 60-plus agencies and organizations) was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation and evaluation through a long-term, iterative, community-based process.

County Service Area #34 staff has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the adoption of the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment.

It is recommended that the Board of Supervisors adopt the CEQA exemption findings and the IRWMP through the attached Resolution, and authorize the Director of Water and Sanitation to file a CEQA Notice of Exemption.

This Board letter has been reviewed by County Counsel and the County Executive Office. If you have questions concerning this item, please contact Sue Hughes, CEO Legislative Analyst, at 805-654-3836.

Sincerely,

R. R. PAKALA,
Director, Water and Sanitation

Attachment 1: Resolution

ATTACHMENT 1

A RESOLUTION OF THE VENTURA COUNTY BOARD OF SUPERVISORS ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE DIRECTOR OF WATER AND SANITATION TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Ventura County Public Works Agency has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Director of Water and Sanitation will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the County's (CSA#34) Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Ventura County Board of Supervisors hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant

to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The Director of Water and Sanitation is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Ventura County Board of Supervisors on behalf of County Service Area #34 hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

ADOPTED, SIGNED AND APPROVED this December 5, 2006.

Linda Parks, Chair
Ventura County Board of Supervisors

ATTEST: JOHN F. JOHNSTON
Clerk of the Board of Supervisors
County of Ventura, State of California

By: _____
Deputy Clerk of the Board

CSD RESOLUTION NO. 2006-25

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CAMARILLO SANITARY DISTRICT ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50 (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 [Water Code Section 79560, et seq.]), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura will prepare a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

WHEREAS, the Camarillo Sanitary District adopted the Calleguas Creek Watershed IRWMP on June 22, 2005, which is incorporated by reference and consistent with the Watersheds Coalition of Ventura County IRWMP and which includes projects of interest to Camarillo Sanitary District.

NOW, THEREFORE, THE BOARD OF DIRECTORS DOES HEREBY RESOLVE AND ORDER AS FOLLOWS:

SECTION 1. All of the above recitals are true and correct.

SECTION 2. The Camarillo Sanitary District hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

APPROVED AND ADOPTED, this 29th day of November 2006.

Charlotte Craven
Chairman

ATTEST:

Assistant Secretary

I, DEBORAH A. HARRINGTON, hereby certify that the foregoing CSD Resolution No. 2006-25 was approved and adopted by the Board of Directors of the Camarillo Sanitary District at a regular meeting held on the 29th day of November 2006, by the following vote of the Board of Directors:

AYES: Directors: Kildee, McDonald, Morgan, Waunch, Chairman Craven
NOES: Directors: None
ABSENT: Directors: None

Assistant Secretary

c: County of Ventura
Calleguas Municipal Water District
Department of Public Works (2)
Department of Finance

OJAI VALLEY SANITARY DISTRICT
A Public Agency
1072 Tico Road, Ojai, California 93023
(805) 646-5548 • FAX (805) 640-0842
www.ojaisan.org

DATE: November 28, 2006

TO: Sue Hughes
County of Ventura, Government Affairs
800 S. Victoria Avenue
Ventura, CA 93009-1940

FROM: Brenda Krout – Administrative Officer

ENCLOSED PLEASE FIND

Certificated copy of Resolution No. 2006-19.

For your review and recommendation

For your action

X For your information

For your files

X In accordance with your request

In accordance with our telephone conversation

REMARKS

CERTIFICATION

I hereby certify that the following is a true and correct copy of Ojai Valley Sanitary District's Resolution No. 2006-19, Adopting The Integrated Regional Water Management Plan Prepared By the Watersheds Coalition of Ventura County, and Authorizing the General Manager to File a CEQA Notice of Exemption, adopted by the Ojai Valley Sanitary District Board of Directors on November 27, 2006.

BRENDA KROUT - CLERK OF THE BOARD
OJAI VALLEY SANITARY DISTRICT

11-28-06
DATE

RESOLUTION NO. 2006-19

COPY

OJAI VALLEY SANITARY DISTRICT

A RESOLUTION OF THE OJAI VALLEY SANITARY DISTRICT ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING THE GENERAL MANAGER TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Ojai Valley Sanitary District has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Ojai Valley Sanitary District has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Ojai Valley Sanitary District hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption prepared by Ojai Valley Sanitary District, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The General Manager is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Ojai Valley Sanitary District hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED ON ADOPTION this 27th day of November, 2006, upon the following vote:

AYES: BAGGERLY, STONE, BURG, CURTIS, GREENE, LOTTS, KAISER

NAYES: NONE

ABSENT: NONE

ABSTAIN: NONE

John R. Curtis, Chairman

ATTEST:

John R. Burg, Secretary

COPY

RESOLUTION NO. 2006-6

A RESOLUTION OF THE SATICOY SANITARY DISTRICT ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING STAFF TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Saticoy Sanitary District has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Saticoy Sanitary District has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Saticoy Sanitary District hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption prepared by Saticoy Sanitary District District, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. Staff is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Saticoy Sanitary District hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

APPROVED AND ADOPTED this 21st day of November 2006.

Ayes: 5

Noes: 0

Absent: 0

SATICOY SANITARY DISTRICT

James Acosta, President

ATTEST:

Debi DeWees, Clerk of the Board

VRSD RESOLUTION NO. 06-09

A RESOLUTION OF THE VENTURA REGIONAL SANITATION DISTRICT ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY, AND AUTHORIZING STAFF TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the region; and

WHEREAS, the Ventura Regional Sanitation District has reviewed the Watersheds Coalition of Ventura County IRWMP, and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Ventura Regional Sanitation District has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Ventura Regional Sanitation District hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption prepared by Ventura Regional Sanitation District, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. Staff is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

4. The Ventura Regional Sanitation District hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

PASSED, APPROVED AND ADOPTED, this 16th day of November 2006.

James Acosta – Chairman

ATTEST:

Rhonda Catron – Clerk of the Board

Resolution 2006-08

of the

Fox Canyon Groundwater Management Agency

ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY AND AUTHORIZING THE EXECUTIVE OFFICER OF THE FCGMA TO FILE A CEQA NOTICE OF EXEMPTION

WHEREAS, in November 2002, the California electorate approved Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the Fox Canyon Groundwater Management Agency has reviewed the Watersheds Coalition of Ventura County IRWMP and has determined that the IRWMP is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan is a planning study which identifies potential projects, programs, and policies for possible future actions; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment; and

WHEREAS, the Fox Canyon Groundwater Management Agency has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

NOW, THEREFORE, BE IT RESOLVED, that the Fox Canyon Groundwater Management Agency hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. Based on review of the Notice of Exemption prepared by Fox Canyon Groundwater Management Agency, the adoption of the Watersheds Coalition of Ventura County IRWMP is hereby determined to be exempt from the requirements of CEQA pursuant to Sections 15262, 15306, 15307, and 15308 of the State CEQA Guidelines.

3. The Executive Officer is hereby authorized and directed to file a Notice of Exemption in accordance with provisions of the California Environmental Quality Act.

On motion of Director Craven, and seconded by Director Flynn, the foregoing Resolution was passed and adopted on this 6th day of December 2006.

Lynn E. Maulhardt, Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST: I hereby certify that the above is a true and correct copy of Resolution 2006-08.

by: _____
Tammy Butterworth, Clerk of the Board

A RESOLUTION OF THE *OJAI BASIN GROUNDWATER MANAGEMENT AGENCY* APPROVING AND LEVYING EXTRACTION CHARGES FOR FISCAL YEAR 2006-2007

Resolution # 2006-1

WHEREAS, pursuant to the Ojai Basin Groundwater Management Agency Act (Chapter 750, Article 11, Sections 1101-1107) the Ojai Basin Groundwater Management Agency is permitted to levy groundwater extraction charges on the extraction of groundwater by the use of water extraction facilities within the boundaries of the Agency for the purposes specified: and

WHEREAS, the Ojai Basin Groundwater Management Agency has caused a boundary map of properties within the district to be prepared along with an assessment roll listing all properties within the boundaries; and

WHEREAS, the Ojai Basin Groundwater Agency has caused Ordinance No. 1 to be approved, requiring the registration and reporting of groundwater extractions within the boundaries of the Agency; and

WHEREAS, the Ojai Basin Groundwater Agency has determined to levy a uniform management charge of $7.50 per acre foot pumped during fiscal year 2006-2007, pursuant to section 1101 of the Act; and

WHEREAS, on August 11, 1998, the Ventura County Board of Supervisors enacted County Ordinance No. 4171, Groundwater Conservation, and has caused the Agency to collect and submit all records to the County, all well owners recording less than 1 A/F biennially starting Period1, 1999, were asked to pay a minimum, service charge equal to the per acre foot extraction fee for the fiscal year per reporting period; and

WHEREAS, in accordance with Section 1102 of the Act, the Agency has provided for notice and a public hearing on the levy of management charges.

NOW, THEREFORE, BE IT RESOLVED, the Ojai Basin Groundwater Agency Board of Directors has determined after notice and public hearing that the levy of management fees for water extractions necessary to support the activities of the Ojai Basin Groundwater Management Agency shall be $7.50 per acre foot of water extracted during the fiscal year starting July 1, 2006 through June 30, 2007. Said fees will be levied in accordance with the assessment map and list of extraction facilities prepared and presented to the Board by Staff. Staff is directed to file this report with the County of Ventura, and to make blank groundwater extraction forms available to known operators by direct mail and by keeping a copy at its offices at 428 Bryant Circle, Suite 100, Ojai, California.

ADOPTED, SIGNED AND APPROVED this November 29, 2006

ATTEST: Cece VanDerMeer, Secretary

Jerry L. Conrow, President

Ventura County Resource Conservation DIstrict
CALLEGUAS CREEK WATERSHED
Resolution # 612
Date: November 14, 2006

A RESOLUTION OF THE ***(Ventura County Resource Conservation District)*** ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN PREPARED BY THE WATERSHEDS COALITION OF VENTURA COUNTY

WHEREAS, in November 2002, the California electorate approved Proposition 50, (the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 et seq), which included $500 million under Chapter 8 for projects included in an Integrated Regional Water Management Plan (IRWMP); and

WHEREAS, Proposition 50, Chapter 8 Implementation funds will only be awarded to Regions with an adopted IRWMP; and

WHEREAS, the IRWMP for the Watersheds Coalition of Ventura County was developed through a comprehensive stakeholder process and provides for ongoing data gathering, planning, design, implementation, and evaluation through a long-term, iterative, community-based process; and

WHEREAS, the widespread adoption of the Watersheds Coalition of Ventura County IRWMP ensures multi-agency participation and future water management planning efforts in the Region; and

WHEREAS, the County of Ventura has prepared a Notice of Exemption for the Watersheds Coalition of Ventura County IRWMP in accordance with CEQA and the Agency's Procedures for the Implementation of CEQA; and

WHEREAS, the ***(Ventura County Resource Conservation District)*** adopted the Calleguas Creek Watershed IRWMP on ***(November 14, 2006)***, which is incorporated by reference and consistent with the Watersheds Coalition of Ventura County IRWMP and which includes projects of interest to the (Ventura County Resource Conservation District).

NOW, THEREFORE, BE IT RESOLVED, that the ***(Ventura County Resource Conservation District)*** hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.

2. The ***(Ventura County Resource Conservation District)*** hereby adopts the Watersheds Coalition of Ventura County Integrated Regional Water Management Plan.

MOTION FOR ADOPTION

AYES: Directors Ball, DeBoni, Walker, Bartels, Contreras, Gramckow, George & McGrath
NOES: None
ABSENT: Director Mobley

ADOPTED: November 14, 2006

CERTIFICATION

I hereby certify that this is a true&exact copy of Resolution No. 612-2006, which was duly and regularly adopted by the the Ventura County Resource Conservation District at a Meeting held November 14, 2006.

John DeBoni

John DeBoni, Secretary

Friends of the Santa Clara River

660 Randy Drive, Newbury Park, California 91320-3036 • (805) 498-4323

November 27, 2006

Watersheds Coalition of Ventura County
c/o Sue Hughes, Co-Chair WCVC
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009-1940

Dear Ms. Hughes:

We are writing to express our support for the adoption of the Watersheds Coalition of Ventura County's Integrated Regional Water Management Plan.

Our support is conditioned on the fact that this Plan is a living document and in the hope that it will function as a starting framework around which cooperative efforts to understand and address the many issues and problems in the watersheds can be established. There is a vital need for continuous reassessment of project goals and priorities by watershed stakeholder groups having broad representation within the community, along with implementation of holistic floodplain/terrace land management that truly protects the resource values of the watershed.

Friends have especially appreciated the efforts of Ventura County Planning in the development of this Plan and recommend that this agency remain as the primary convener of stakeholder groups in the various watersheds. We look forward to working with other stakeholders in the creation of an overall plan for the Santa Clara River Watershed.

Sincerely,

Ron Bottorff

Ron Bottorff, Chair

The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

Los Angeles - Ventura Project
3639 Harbor Blvd., Suite 201
Ventura, CA 93001

tel [805] 642.0345, ext. 502
fax [805] 642.0343

nature.org

November 29, 2006

Watersheds Coalition of Ventura County
c/o Sue Hughes, Co-Chair WCVC
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009-1940

RE: Integrated Watershed Management Plan

Dear Ms. Hughes:

I am writing to express The Nature Conservancy's support for the adoption of the Watersheds Coalition of Ventura County's Integrated Regional Water Management Plan. We are pleased to have been given the opportunity to participate in the preparation of this plan. We also look forward to participation in its updates and future project selections.

The key to the success of this project lies in participation of the broad range of stakeholders interested in water management. The County Planning Department is to be commended for seeking them out and encouraging their participation. Furthermore, the Planning Department is a neutral party and has expertise in preparing complicated plans and implementation strategies needed to address our water management needs. I hope they will continue to be the IRWMP facilitators in the future.

Sincerely,

E.J. Remson
Senior Program Manager

THE OJAI VALLEY LAND CONSERVANCY

Working to protect the Ojai Valley's future– today

11-15-06

Watersheds Coalition of Ventura County
c/o Sue Hughes, Co-Chair WCVC
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009-1940

Dear Ms. Hughes:

We are writing to express our support for the adoption of the Watersheds Coalition of Ventura County's Integrated Regional Water Management Plan.

Sincerely,

George Berg
Interim Executive Director

P.O. Box 1092 Ojai, CA 93024 Phone: (805) 646-7930 Fax: (805) 646-0253 email address:ovlc@ojai.net www.ovlc.org

Surfrider Foundation

Ventura County Chapter – Matilija Coalition
239 W Main St., Ventura, CA 93001
(805) 667-2222 **www.matilija-coalition.org**

November 15, 2006

Watersheds Coalition of Ventura County
c/o Sue Hughes, Co-Chair WCVC
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009-1940

Dear Ms. Hughes:

We are writing to express our support for the adoption of the Watersheds Coalition of Ventura County's Integrated Regional Water Management Plan.

We view this document as the first step in a cooperative effort to address the county's water resources in a holistic manner. Many of the issues raised during the IRWMP process allude to some of the systemic problems within and between our local agencies. In this regard, we sincerely hope that this plan will generate an environment in which collaboration will lead to new and better ways of managing our watersheds.

We look forward to working with the other stakeholders and agencies on a watershed plan for the Ventura River, and continuing the dialog on watershed issues countywide.

Sincerely,

A. Paul Jenkin
Coordinator, Matilija Coalition
Environmental Director, Surfrider Foundation - Ventura County Chapter
(805) 648-4005

THE TRUST for PUBLIC LAND

Western Regional Office
116 New Montgomery St
Third Floor
San Francisco CA
94105
T 415-495-5660
F 415-495-0541
www.tpl.org

December 15, 2006

Watersheds Coalition of Ventura County
c/o Sue Hughes, Co-Chair WCVC
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009-1940

Dear Ms. Hughes:

We are writing to express our support for the adoption of the Watersheds Coalition of Ventura County's Integrated Regional Water Management Plan. TPL looks forward to continued participation in water management strategies in Ventura County that include protection of watershed lands and appropriate public access.

Sincerely,

Reed Holderman
Western Regional Director
Trust for Public Land